JVC

SERVICE MANUAL

LCD FLAT TELEVISION

LT-26C31BJE, LT-26C31BUE, LT-26C31SJE, LT-26C31SUE

BASIC CHASSIS
MK

InteríArt

D.I.S.T.
Digital Image Scaling Technology

T-V LINK

TABLE OF CONTENTS

No.YA014
2003/11

SPECIFICATION

Items		Contents
Dimensions (W × H × D)		70.3 cm × 56.0 cm × 2.6 cm (Included stand) 70.3 cm × 49.1 cm × 9.4 cm (TV only)
Mass		19.0 kg (Included stand) 18.3 kg (TV only)
TV RF System		CCIR B/G, I, D/K, L
Colour System		PAL / SECAM / NTSC 3.58 / NTSC 4.43 (NTSC:EXT only).
Stereo System		A2 (B/G, D/K), NICAM (B/G, I, D/K, L)
Teletext System		FLOF (Fastext), TOP, WST (World Standard System)
Receiving Frequency	VHF	47MHz ~ 470MHz
	UHF	470MHz ~ 862MHz
	CATV	116MHz ~ 172MHz / 220MHz ~ 469MHz
Intermediate Frequency	VIF	38.9MHz(B/G, D/K, I)
	SIF	33.4MHz(5.5MHz:B/G) / 32.9MHz(6.0MHz:I) / 32.4MHz(6.5MHz:L,D/K)
Colour Sub Carrier Frequency	PAL	4.43MHz
	SECAM	4.40625MHz / 4.25MHz
	NTSC	3.58MHz / 4.43MHz
Power Input		AC110 - AC240 V, 50 Hz / 60 Hz
Power Consumption		148 W, [Standby: 2.8 W]
Aerial Input		75 Ω unbalanced, coaxial
Screen Size		Viewable area 66 cm (measured diagonally)
Display Resolution		Horizonal : 1280 dots × Vertical : 768 dots (W-XGA)
Speaker		6.6 cm round × 2 (Oblique corn)
Audio Power Output		10 W + 10 W (Rated power output)
EXT-1 (Input/Output)		21 pin Euro connector (SCART socket) Video input, Audio L/R inputs and RGB inputs are available. TV broadcast outputs (Video and Audio L/R) are available.
EXT-2 (Input/Output)		21 pin Euro connector (SCART socket) Video input, S-VIDEO (Y/C) input, Audio L/R inputs and RGB inputs are available. Video and Audio L/R outputs are available. T-V LINK functions are available.
EXT-3 (Input)	S-Video	Mini-DIN 4 pin × 1 Y: 1V (p-p), Positive (Negative sync provided), 75 Ω C: 0.286V (p-p) (Burst signal), 75 Ω
	Video	1V (p-p), Positive (Negative sync provided), 75 Ω, RCA pin jack × 1
	Audio	500mV (rms), High impedance, RCA pin jack × 2
EXT-4 (Input)	Component video	RCA pin jack × 3 Y : 1V(p-p), 75 Ω Pb / B-Y: 0.7V(p-p), 75 Ω Pr / R-Y : 0.7V(p-p), 75 Ω Component video (Pr, Pb, Y) inputs (625p, 525p, 1125i) and Audio L/R inputs are available. 525p and 625p are progressive scanning signals. Some DVD players can output these signals. 1125i is one of the new high-definition signals.
	Audio (L/R)	500mV(rms) (-4dBs), High impedance, RCA pin jack × 2
AUDIO OUT terminal		500mV(rms), Low impedance, RCA pin jack × 2
Headphone jack		3.5 mm stereo mini jack × 1
Remote Control Unit		RM-C1808 (AA/R6 dry cell battery × 2)

Design and specifications subject to change without notice.

SECTION 1
PRECAUTION

1.1 SAFETY PRECAUTIONS [EXCEPT FOR UK]

(1) The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

(2) Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

(3) Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (⚠) on the parts list in Service manual**. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.

(4) **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND, the ISOLATED (NEUTRAL) : (⏚) side GND and EARTH : (⏚) side GND.
Don't short between the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND and never measure the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND at the same time with a measuring apparatus (oscilloscope etc.). If above note will not be kept, a fuse or any parts will be broken.

(5) If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See B1 POWER SUPPLY check).

(6) The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.

(7) Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.

(8) When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

(9) **Isolation Check (Safety for Electrical Shock Hazard)**
After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screw heads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
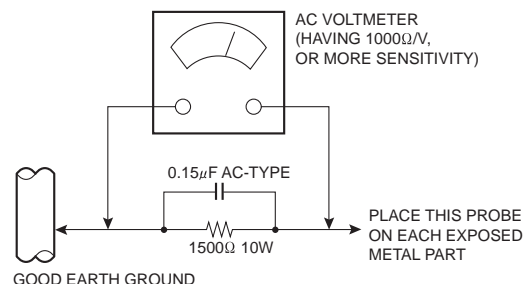
 a) **Dielectric Strength Test**
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second. (. . . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.) This method of test requires a test equipment not generally found in the service trade.

 b) **Leakage Current Check**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

Alternate Check Method
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000Ω per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).

AC VOLTMETER
(HAVING 1000Ω/V,
OR MORE SENSITIVITY)

0.15μF AC-TYPE

PLACE THIS PROBE
ON EACH EXPOSED
METAL PART

1500Ω 10W

GOOD EARTH GROUND

1.2 SAFETY PRECAUTIONS [FOR UK]

(1) The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

(2) Alterations of the design or circuitry of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

(3) Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessary be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the Parts List of Service Manual may cause shock, fire, or other hazards.

(4) The leads in the products are routed and dressed with ties, clamps, tubing's, barriers and the like to be separated from live parts, high temperature parts, moving parts and / or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

WARNING

(1) The equipment has been designed and manufactured to meet international safety standards.
(2) It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
(3) Repairs must be made in accordance with the relevant safety standards.
(4) It is essential that safety critical components are replaced by approved parts.
(5) If mains voltage selector is provided, check setting for local voltage.

1.3 INSTALLATION

1.3.1 HEAT DISSIPATION

If the heat dissipation vent behind this unit is blocked, cooling efficiency may deteriorate and temperature inside the unit will rise. Therefore, please make sure pay attention not to block the heat dissipation vent as well as the ventilation outlet behind the unit and ensure that there is room for ventilation around it.

Distance recommendations

Avoid improper installation and never position the unit where good ventilation is impossible.
When installing this TV, distance recommendations must be maintained between the set and the wall, as well as inside a tightly enclosed area or piece of furniture.
Keep to the minimum distance guidelines shown for safe operation.
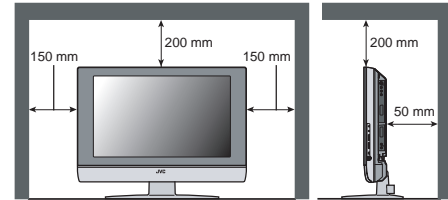
1.3.2 INSTALLATION REQUIREMENTS

To ensure safety in an emergency such as an earthquake, and to prevent accidents, ensure that measures are taken to prevent the TV dropping or falling over.
Use the supplied screws to firmly attach the supplied hooks to the back of the TV, and use commercially available cord to fix the TV to rigid components such as walls and columns.

Supplied hooks
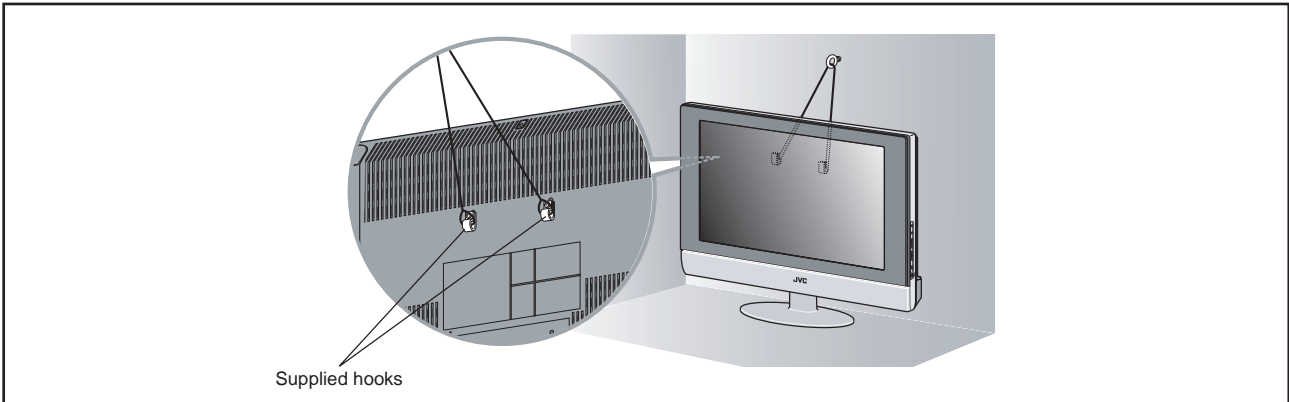
1.3.3 NOTES ON HANDLING

(1) WHEN TAKING UNIT OUT OF A PACKING CASE
   When taking the unit out of a packing case, do not grasp the upper part of the unit. If you take the unit out while grasping the upper part, the LCD PANEL may be damaged because of a pressure. Instead of grasping the upper part, put your hands on the lower backside or sides of the unit.

(2) AS FOR PRESSING OR TOUCHING A SPEAKER
   Be careful not to press the opening of the speaker in the lower part of the unit and around them since the decorative sheet on the surface of the openings may be deformed.

1.4 HANDLING LCD PANEL

1.4.1 PRECAUTIONS FOR TRANSPORTATION

When transporting the unit, pressure exerted on the internal LCD panel due to improper handling (such as tossing and dropping) may cause damages even when the unit is carefully packed. To prevent accidents from occurring during transportation, pay careful attention before delivery, such as through explaining the handling instructions to transporters.

Ensure that the following requirements are met during transportation, as the LCD panel of this unit is made of glass and therefore fragile:

(1) USE A SPECIAL PACKING CASE FOR THE LCD PANEL
   When transporting the LCD panel of the unit, use a special packing case (packing materials). A special packing case is used when a LCD panel is supplied as a service spare part.

(2) ATTACH PROTECTION SHEET TO THE FRONT
   Since the front (display part) of the panel is vulnerable, attach the protection sheet to the front of the LCD panel before transportation. Protection sheet is used when a LCD panel is supplied as a service spare part.

(3) AVOID VIBRATIONS AND IMPACTS
   The unit may be broken if it is toppled sideways even when properly packed. Continuous vibration may shift the gap of the panel, and the unit may not be able to display images properly. Ensure that the unit is carried by at least 2 persons and pay careful attention not to exert any vibration or impact on it.

(4) DO NOT PLACE EQUIPMENT HORIZONTALLY
   Ensure that it is placed upright and not horizontally during transportation and storage as the LCD panel is very vulnerable to lateral impacts and may break. During transportation, ensure that the unit is loaded along the traveling direction of the vehicle, and avoid stacking them on one another. For storage, ensure that they are stacked in 2 layers or less even when placed upright.

1.4.2 OPTICAL FILTER (ON THE FRONT OF THE LCD PANEL)

(1) Avoid placing the unit under direct sunlight over a prolonged period of time. This may cause the optical filter to deteriorate in quality and colour.

(2) Clean the filter surface by wiping it softly and lightly with a soft and lightly fuzz cloth (such as outing flannel).

(3) Do not use solvents such as benzene or thinner to wipe the filter surface. This may cause the filter to deteriorate in quality or the coating on the surface to come off. When cleaning the filter, usually use the neutral detergent diluted with water. When cleaning the dirty filter, use water-diluted ethanol.

(4) Since the filter surface is fragile, do not scratch or hit it with hard materials. Be careful enough not to touch the front surface, especially when taking the unit out of the packing case or during transportation.

1.4.3 PRECAUTIONS FOR REPLACEMENT OF EXTERIOR PARTS
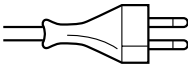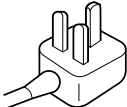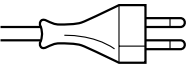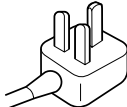
Take note of the following when replacing exterior parts (REAR COVER, FRONT PANEL, etc.):

(1) Do not exert pressure on the front of the LCD panel (filter surface). It may cause irregular colour.

(2) Pay careful attention not to scratch or stain the front of the LCD panel (filter surface) with hands.

(3) When replacing exterior parts, the front (LCD panel) should be placed facing downward. Place a mat, etc. underneath to avoid causing scratches to the front (filter surface).

1.5 MAIN DIFFERENCE LIST

⚠	Items	LT-26C31BUE	LT-26C31BJE	LT-26C31SUE	LT-26C31SJE
⚠	FRONT PANEL COLOUR	BLACK	←	SILVER	←
⚠	POWER CORD	QMPK300-170-JC	QMPN250-170-JC	QMPK300-170-JC	QMPN250-170-JC

SECTION 2
SPECIFIC SERVICE INSTRUCTIONS

2.1 FEATURES

2.1.1 FUNCTION / CIRCUITS

- DIST (Digital Image Scaling Technology) employs an interpolation method that doubles the scanning lines to realize 1250-line flicker-free picture making it especially suitable for reproducing high-resolution pictures even on large-screen displays.
- New chassis design enable use of an interactive on screen control.
- The TELETEXT SYSTEM has a built-in FASTEXT (UK system), TOP (German system) and WST (world standard system) system.
- Because this TV unit corresponds to multiplex broadcast, users can enjoy music programs and sporting events with live realism. In addition, BILINGUAL programs can be heard in their original language.
- Users can make VCR dubbing of picture and sound by controlling the AV selector to select an optional source at the EXT-2 output shown in figure.
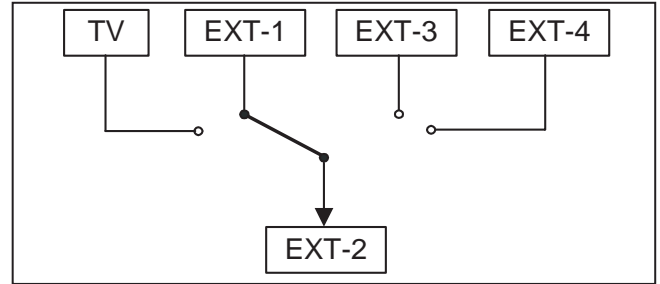
2.1.2 21-PIN EURO CONNECTOR (SCART) : EXT-1/EXT-2

Pin No.	Signal designation	Matching value	EXT-1	EXT-2
1	AUDIO R output	500mV(rms) (Nominal), Low impedance	Used (TV OUT)	Used (LINE OUT)
2	AUDIO R input	500mV(rms) (Nominal), High impedance	Used (R1)	Used (R2)
3	AUDIO L output	500mV(rms) (Nominal), Low impedance	Used (TV OUT)	Used (LINE OUT)
4	AUDIO GND		Used	Used
5	GND (B)		Used	Used
6	AUDIO L input	500mV(rms) (Nominal), High impedance	Used (L1)	Used (L2)
7	B input	700mV$_{(B-W)}$, 75Ω	Used	Used
8	FUNCTION SW (SLOW SW)	Low : 0V-3V High : 8V-12V, High impedance	Used	Used
9	GND (G)		Used	Used
10	SCL / T-V LINK		Not used	Used (SCL2 / TV-LINK)
11	G input	700mV$_{(B-W)}$, 75Ω	Used	Used
12	SDA		Not used	Used (SDA2)
13	GND (R)		Used	Used
14	GND (YS)		Used	Not used
15	R / C input	R : 700mV$_{(B-W)}$, 75Ω C : 300mV$_{(P-P)}$, 75Ω	Used (R)	Used (C2/R)
16	Ys input (FAST SW)	Low : 0V-0.4V, High : 1V-3V, 75Ω	Used	Used
17	GND (VIDEO output)		Used	Used
18	GND (VIDEO input)		Used	Used
19	VIDEO output	1V$_{(P-P)}$ (Negative sync), 75Ω	Used (TV OUT)	Used (LINE OUT)
20	VIDEO / Y input	1V$_{(P-P)}$ (Negative sync), 75Ω	Used	Used
21	COMMON GND		Used	Used

(P-P= Peak to Peak, B-W= Blanking to white peak)

[Pin assignment]
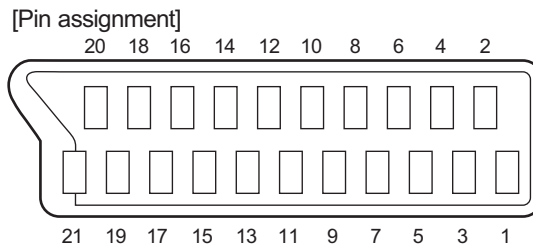
2.2 TECHNICAL INFORMATION

2.2.1 LCD PANEL

This unit uses the flat type panel LCD (Liquid Crystal Display) panel that occupies as little space as possible, instead of the conventional CRT (Cathode Ray Tube), as a display unit.

2.2.1.1 STRUCTURE

The LCD panel of the unit is constructed with the metal chassis that surrounds the panel unit and supports the LCD panel part and the backlight part to protect them.

The colour filter glass and the TFT glass (thin film transistor) are inserted between the front polarizing filter and the rear polarizing filter. Liquid crystals are inserted between the colour filter glass and the TFT glass. Since the gap between the two glasses is only a few μm, a spacer (bead) is inserted in the gap to retain the gap.

The backlight unit is placed behind the LCD panel. Since liquid crystals themselves do not emit light, the backlight as an external light source emits light to the LCD panel from behind through the diffuser.

Circuit boards for controlling the LCD panel and the backlight are attached around the back part of the LCD panel unit.

Since the unit has the two polarizing filter that are at right angles to each other, the unit adopts "normally black" mode, where light does not pass through the polarizing filter and the screen is black when no voltage is applied to the liquid crystals.
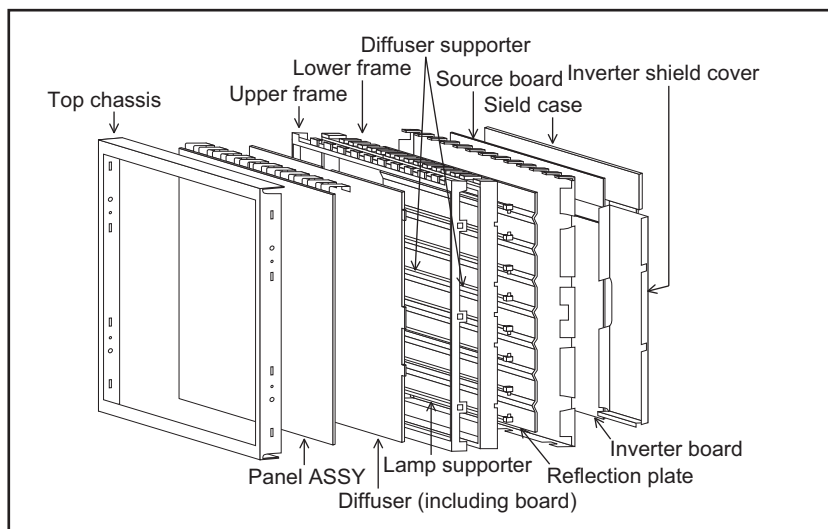
Fig.1 Structure of the LCD panel unit

2.2.1.2 SPECIFICATIONS

The following table shows the specifications of this unit.

Item	Specifications	Remarks
Maximum dimensions (W × H × D)	62.7cm × 38.9cm × 4.9cm	
Weight	8.0kg	
Effective screen size	Diagonal : 66cm (H:33.9cm × V : 56.6cm)	26V type
Aspect ratio	15:9	
Drive device/ system	a-Si-TFT, active matrix system	
Resolution	Horizontally 1280 × Vertically 768 × RGB <W-XGA>	2949120 dots in total
Pixel pitch (pixel size)	Horizontally:0.4425mm, Vertically:0.4425mm	
Displayed colour	16777216 colours	256 colours for R, G, and B
Brightness	450cd/m^2	500cd/m^2 at maximum
Contrast ratio	500:1	
Response time	16.7ms	
View angle	Vertically 170°, horizontally 170°	

2.2.1.3 PIXEL FAULT

There are three pixel faults - bright fault , dark fault and flicker fault - that are respectively defined as follows.

(1) BRIGHT FAULT

In this pixel fault, a cell that should not light originally is lighting on and off.

For checking this pixel fault, input ALL BLACK SCREEN and find out the cell that is lighting on and off.

(2) DARK FAULT

In this pixel fault, a cell that should light originally is not lighting or lighting with the brightness twice as brighter as originally lighting.

For checking this pixel fault, input 100% of each R/G/B colour and find out the cell that is not lighting.

(3) FLICKER FAULT

In the pixel fault, a cell that should light originally or not light originally is flashing on and off.

For checking this pixel fault, input ALL BLACK SCREEN signal or 100% of each RGB colour and find out the cell that is flashing on and off.

2.2.2 MAIN CPU PIN FUNCTION (IC001)

Pin No.	Pin Name	I/O	Remark
1	TCK	I	Test purpose
2	TMS	I	Test purpose
3	TDI	I	Test purpose
4	TDO	O	Test purpose
5	P2.8	I/O	Remote control input
6	P2.9	I/O	Mechanical power switch detection [Pushing:L]
7	P2.10	I/O	IP error detection [Detection:L]
8	P2.11	I/O	IP reset
9	P2.12	I/O	Port for TV-LINK communication
10	P2.13	I/O	Power ON/OFF [ON:L]
11	P2.14	I/O	Protector detection [Detection:L]
12	P2.15	I/O	Power condition check [ON:L]
13	VSS33	I	GND
14	VDD33	I	3.3V
15	P4.5	I/O	Port for TV-LINK communication
16	A20	O	Memory bus address
17	A19	O	Memory bus address
18	A18	O	Memory bus address
19	A17	O	Memory bus address
20	VSS25	I	GND
21	VDD25	I	2.5V
22	A16	O	Memory bus address
23	A8	O	Memory bus address
24	A7	O	Memory bus address
25	A9	O	Memory bus address
26	A6	O	Memory bus address
27	A5	O	Memory bus address
28	A10	O	Memory bus address
29	A11	O	Memory bus address
30	A12	O	Memory bus address
31	VSS33	I	GND
32	VDD33	I	3.3V
33	A4	O	Memory bus address
34	A3	O	Memory bus address
35	A2	O	Memory bus address
36	A1	O	Memory bus address
37	A0	O	Memory bus address
38	A13	O	Memory bus address
39	RAS/A14	O	Memory bus address
40	CAS/A15	O	Memory bus address
41	VSS33	I	GND
42	VDD33	I	3.3V
43	MEMCLK	O	Clock for memory
44	CSSDRAM	O	Chip select for memory
45	CLKEN	O	Clock enable for memory
46	CSROM	O	Chip select for memory
47	RD	O	Read for memory
48	UDQM	O	Control IN/OUT buffer of Memory (IC003)
49	LDQM	O	Control IN/OUT buffer of Memory (IC003)
50	WR	O	Write for memory
51	D15	I/O	Data bus
52	VSS33	I	GND
53	VDD33	I	3.3V
54	D7	I/O	Data bus
55	D0	I/O	Data bus
56	D14	I/O	Data bus
57	D8	I/O	Data bus
58	D6	I/O	Data bus
59	D1	I/O	Data bus
60	VSS33	I	GND
61	VDD33	I	3.3V
62	D13	I/O	Data bus
63	D9	I/O	Data bus
64	D5	I/O	Data bus
65	D2	I/O	Data bus
66	D12	I/O	Data bus
67	D10	I/O	Data bus
68	VSS33	I	GND
69	VDD33	I	3.3V
70	D4	I/O	Data bus
71	D3	I/O	Data bus
72	D11	I/O	Data bus
73	RSTIN	I	Reset
74	P3.0	I/O	I^2C CLOCK 0 (for memory)
75	P3.1	I/O	I^2C DATA 0 (for memory)
76	P3.2	I	Remote control input
77	P3.3	I/O	Clock for OSD
78	P3.4	O	Tuner system switch
79	P3.5	O	Tuner system switch
80	P3.6	I	Teletext mode:H
81	P3.7	I	Power START
82	P3.8	I	Not used
83	P3.9	I	Picture mute
84	VSS33	I	GND
85	VDD33	I	3.3V
86	VSS25	I	GND
87	VDD25	I	2.5V
88	TXD0	I/O	Sub micro computer communication
89	RXD0	I/O	Sub micro computer communication
90	P3.12	I	Not used
91	P3.13	I/O	Not used
92	P3.15	I/O	Not used
93	P5.14(YS2)	I/O	YS2 of SCART RGB
94	P5.15	I/O	Headphone detection [Detection:L]
95	TRIG_IN	I/O	Not used
96	TRIG_OUT	I/O	Not used
97	P6.2	I	Not used
98	P6.3	I/O	I^2C bus clock for IC control
99	P6.4	I/O	I^2C bus data for IC control
100	P6.5	I/O	Multi-sound process reset
101	P6.6	I/O	I^2C bus data for IC control
102	VSYNC	O	Vertical sync for OSD
103	HSYNC	O	Horizontal sync for OSD
104	COR/RSTOUT	O	Not used
105	BLANK	O	Ys for OSD/Teletext
106	VDD33	I	3.3V
107	VSS33	I	GND
108	XTAL1	I	6MHz
109	XTAL2	O	6MHz
110	VSSA	I	GND
111	VDDA	I	Not used
112	R	O	R for OSD Teletext
113	G	O	G for OSD Teletext
114	B	I	B for OSD Teletext
115	VSSA	I	GND
116	VDDA	I	2.5V
117	CVBS2	I	Video for Teletext
118	VSSA	I	GND
119	VDDA	I	2.5V
120	CVBS1B	I	Video for Teletext
121	CVBS1A	I	Video for Teletext
122	VSSA	I	GND
123	VDDA	I	2.5V
124	P5.0	I	AFT for tuner
125	P5.1(KEY1)	I	Key scan data 1 [ON:H]
126	P5.2	I	AGC for tuner
127	P5.3(KEY2)	I	Key scan data 2 [ON:H]
128	TMODE	I	Test purpose

2.2.3 SUB CPU PIN FUNCTION (IC7807)

Pin No.	Pin name	I/O	Function
1	(SYSTEM0)	I	GND
2	(SYSTEM3)	I	GND
3	AVCC	-	5V
4	X2	-	Sub clock
5	X1	-	Sub clock
6	VCL	-	Internal down voltage
7	RES	I	Reset [Reset : L]
8	TEST	I	Operation test for SUB CPU
9	VSS	-	GND
10	OSC2	O	10MHz oscillation for system clock
11	OSC1	I	10MHz oscillation for system clock
12	VCC	-	5V
13	NC	O	Not used
14	NC	O	Not used
15	BL_D2	O	Back light 20ms delay for LCD panel [On:L]
16	BL_D1	O	Back light 10ms delay for LCD panel [On:L]
17	I2C_STOP	O	Not used
18	BL_ON	O	Back light reset for LCD panel [Reset:L]
19	NC	O	Not used
20	NC	O	Not used
21	NC	O	Not used
22	NC	O	Not used
23	SDA1	I/O	I^2C bus data (For Sub memory)
24	A.DIM	O	Not used
25	SCL1	O	I^2C bus clock (For Sub memory)
26	SDA0	I/O	I^2C bus data (For general)
27	SCL0	O	I^2C bus clock (For general)
28	NC	O	Not used
29	NC	O	Not used
30	NC	O	Not used
31	NC	O	Not used
32	NC	O	Not used
33	NC	O	Not used
34	NC	O	Not used
35	NMI	I	Port for writing on board [Writning:L]
36	NC	O	Not used
37	(HD)	I	Not used
38	NC	O	Not used
39	(REMO)	I	Not used
40	NC	O	Not used
41	P85	-/I	Not used
42	P86	-	Not used
43	P87	-	Not used
44	SCK3	O	Port for writing on board
45	RXD	I	Port for writing on board
46	TXD	O	Port for writing on board
47	(PROTECTOR0)	I	Not used
48	NC	O	Not used
49	RXD2	I	Port for communication (Main CPU)
50	TXD2	O	Port for communication (Main CPU)
51	NC	O	Not used
52	(ACTIVE)	I	Not used
53	VD	I	Vertical sync
54	(REC_DET)	I	Not used
55	(PSS)	I	Not used
56	(ALARM)	I	Not used
57	(SYSTEM2)	I	Not used
58	(SYSTEM1)	I	Not used
59	(PROTECTOR1)	I	Not used
60	(AMP_PRO2)	I	Not used
61	(AMP_PRO1)	I	Not used
62	EE_CDS	I	Not used
63	(KEY_IN1)	I	Not used
64	(KEY_IN2)	I	Not used

SECTION 3
DISASSEMBLY

3.1 DISASSEMBLY PROCEDURE

CAUTION:

Since this model is a laminating structure assembly, please perform in following order in the case of disassembling.

3.1.1 REMOVING THE STAND ASS'Y (Fig.3-1-1)

(1) Remove the 2 screws [A], and remove the COVER.
(2) Remove the 4 screws [B], and remove the STAND ASS'Y.
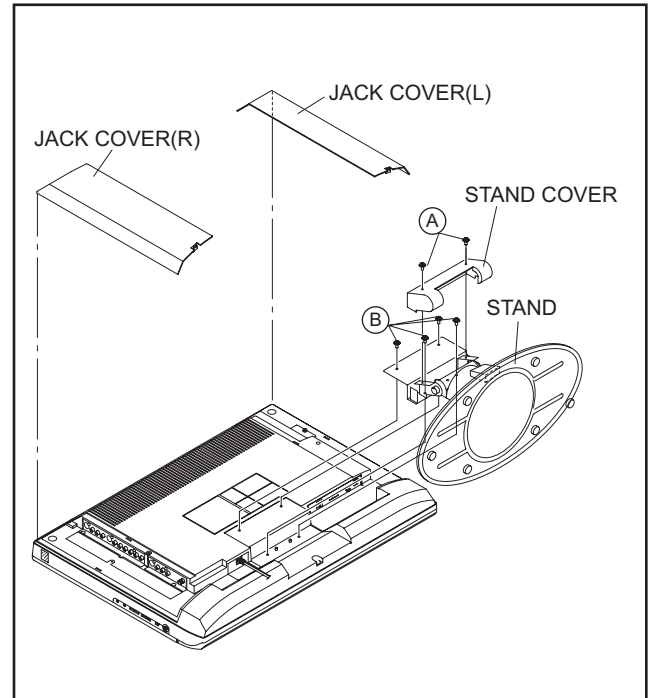
Fig.3-1-1

3.1.2 REMOVING THE REAR COVER (Fig.3-1-1, Fig.3-1-2)

• Remove the STAND ASS'Y.

(1) Remove the JACK COVER(R) and JACK COVER(L).
(2) Remove the 7 screws [C], 3 screws [D], 4 screws [E], and remove the REAR COVER.
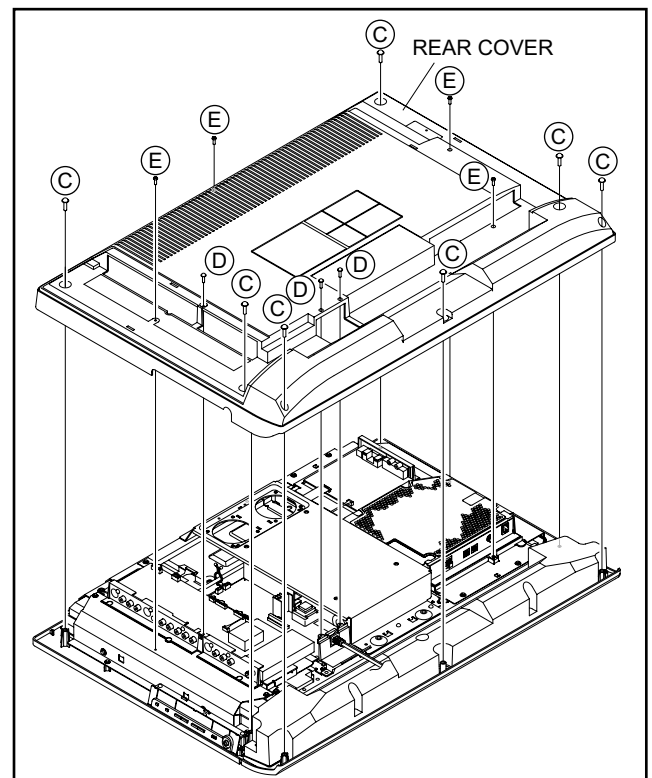
Fig.3-1-2

3.1.3 REMOVING THE FUN BRACKET, REGULATOR PWB AND POWER CORD (Fig.3-1-3)

• Remove the STAND ASS'Y.
• Remove the REAR COVER.
  (1) Disconnect the wire(CONN. [Y]) of FUN MOTOR.
  (2) Remove the 5 screws [F], and remove the FUN BRACKET.
  (3) Remove the REGULATOR PWB, and disconnect the POWER CORD.
  (4) Remove the 1 screw [G], and remove the POWER CORD HOLDER.
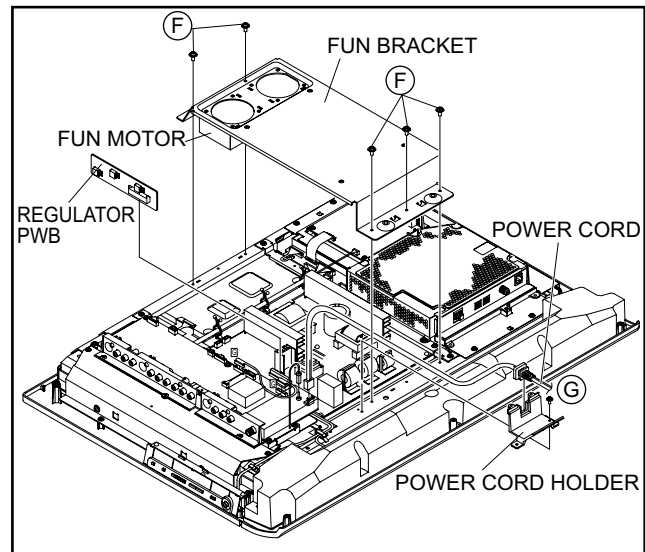
Fig.3-1-3

3.1.4 REMOVING THE RECEIVER PWB (Fig.3-1-4)

• Remove the STAND ASS'Y.
• Remove the REAR COVER.
  (1) Remove the 2 screws [H] and 2 screws [J], then remove the TERMINAL BASE.
  (2) Remove the 5 screws [K], and remove the RECEIVER PWB.
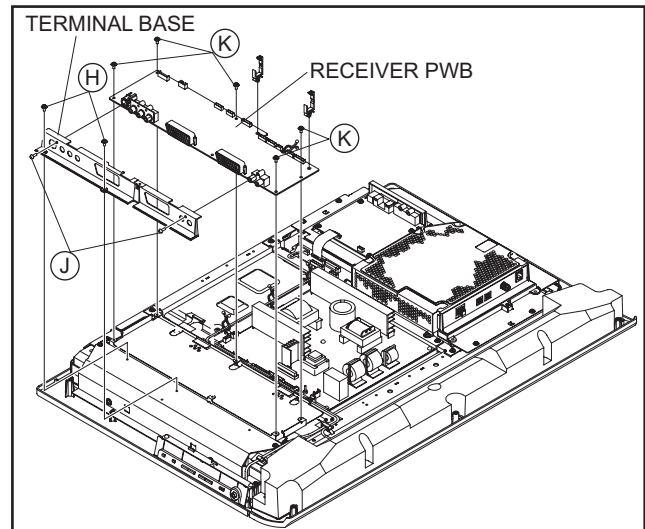
Fig.3-1-4

3.1.5 REMOVING THE FRONT CONTROL PWB AND FRONT SENSOR PWB (Fig.3-1-5)

• Remove the STAND ASS'Y.
• Remove the REAR COVER.
  (1) Remove the 2 screws [L], and remove the CONTROL KNOB.
  (2) Remove the 3 screws [N], then remove the FRONT CONTROL PWB and FRONT SENSOR PWB.
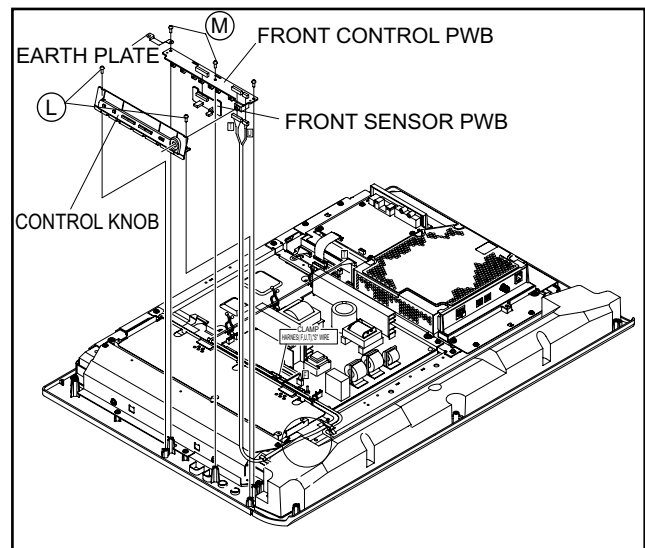
Fig.3-1-5

3.1.6 REMOVING THE VIDEO PWB (Fig.3-1-6)

• Remove the STAND ASS'Y.
• Remove the REAR COVER.
   (1) Remove the 2 screws [N] and 1 screws [P], then remove the JACK BASE.
   (2) Remove the 4 screws [Q], and remove the VIDEO PWB.
   (3) Remove the 2 screws [R], and remove the TUNER PWB BASE.
   (4) Remove the 4 screws [S], and remove the TUNER PWB and MSP PWB.
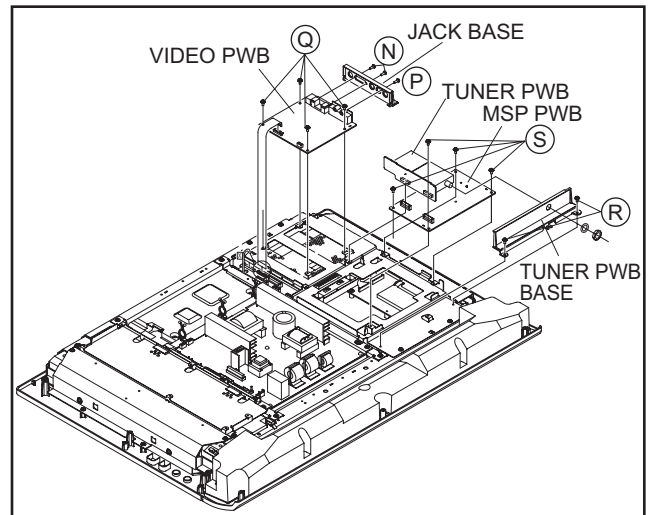
Fig.3-1-6

3.1.7 REMOVING THE MI-COM & DIST PWB (Fig.3-1-7)

• Remove the STAND ASS'Y.
• Remove the REAR COVER.
   (1) Remove the 7 screws [T], and remove the VIDEO PWB BRACKET.
   (2) Remove the 4 screws [U], and remove the MI-COM & DIST PWB from VIDEO PWB BRACKET.
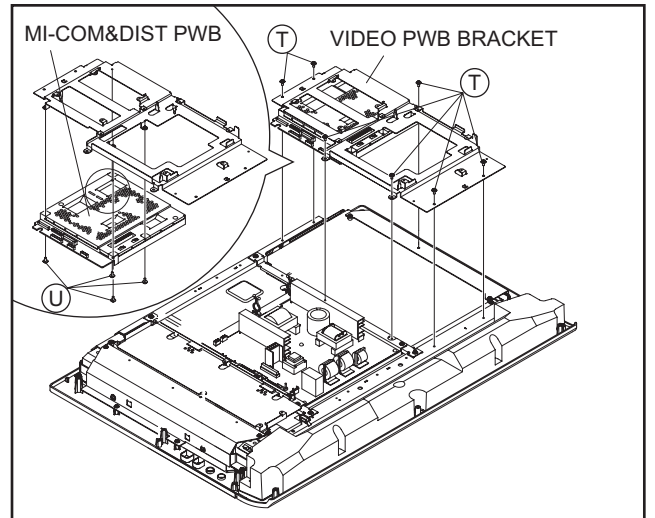
Fig.3-1-7

3.1.8 REMOVING THE POWER PWB (Fig.3-1-8)

• Remove the STAND ASS'Y.
• Remove the REAR COVER.
• Remove the FUN BRACKET.
• Remove the POWER CORD.
• Remove the VIDEO PWB.
   (1) Remove the 4 screws [X], and remove the AV JACK BRACKET.
   (2) Remove the 6 screws [Y], and remove the POWER PWB.
   (3) Remove the 6 screws [Z], and remove the POWER PWB BASE.
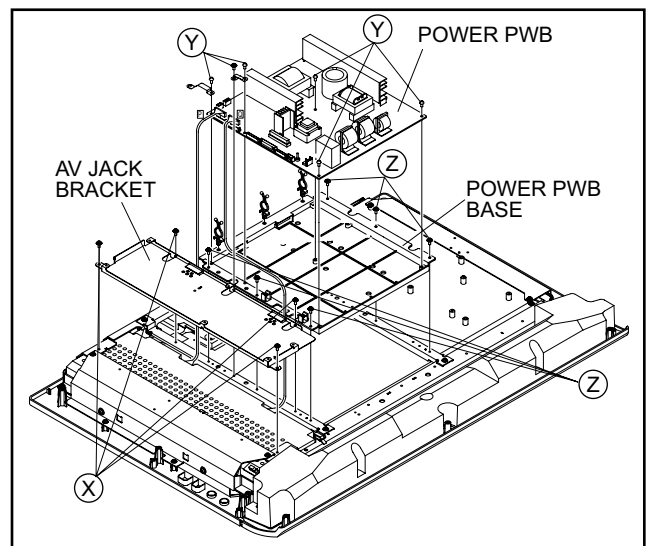
Fig.3-1-8

3.1.9 REMOVING THE SPEAKER (Fig.3-1-9A, Fig.3-1-9B)

• Remove the STAND ASS'Y.
• Remove the REAR COVER.
• Remove the POWER CORD.
  (1) Remove the 5 screws [a], and remove the SPEAKER BOX.
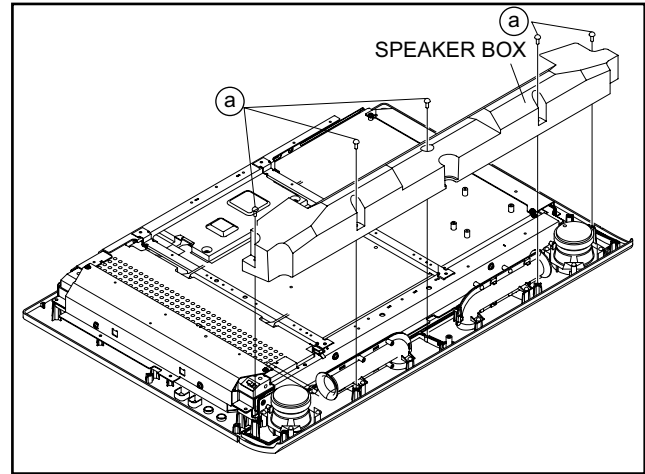
Fig.3-1-9A

  (2) Remove the 4 screws [b], and remove the SPEAKER (L/R).
  (3) Remove the 4 screws [c], and remove the DUCT COVER/
      DUCT BASE.

NOTE:
  Since the speaker is attached in a certain direction, attach the
  speaker in the same correct direction as it has been attached.
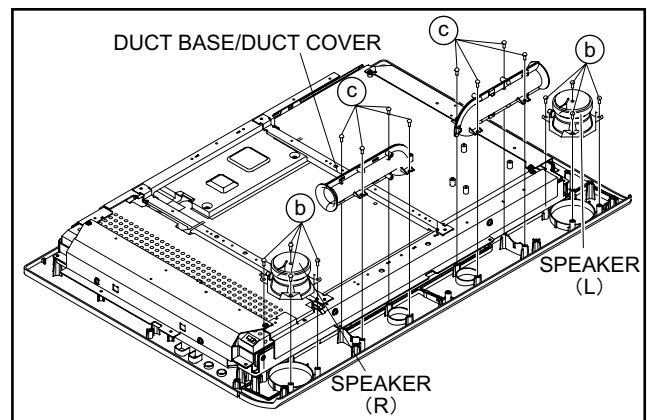
Fig.3-1-9B

3.1.10 REMOVING THE LCD PANEL (Fig.3-1-10A, Fig.3-1-10B, Fig.3-1-10C)

* Remove the STAND ASS'Y.
* Remove the REAR COVER.
* Remove the POWER CORD.
* Remove the RECEIVER PWB.
* Remove the FRONT CONTROL PWB.
* Remove the FRONT SENSOR PWB.
* Remove the VIDEO PWB.
* Remove the MI-COM & DIST PWB
* Remove the POWER PWB.
  (1) Remove the 8 screws [d] and 2 screws [e], then remove the LCD PANEL.
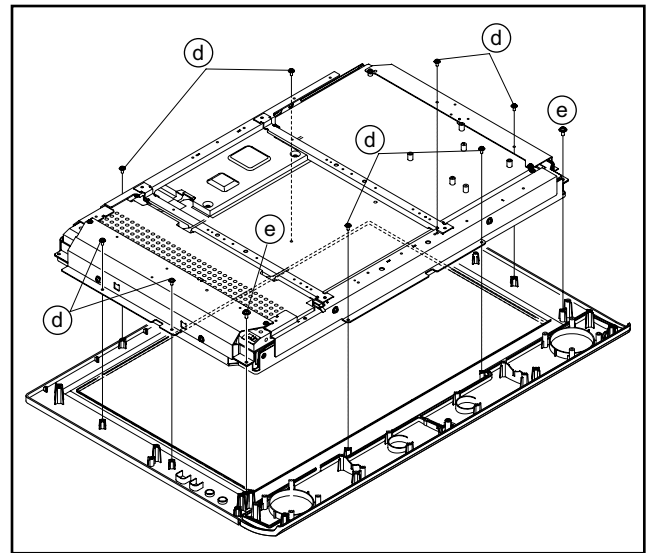
Fig.3-1-10A

(2) Remove the 2 screws [f], and remove the 2 CENTRE FRAMES.
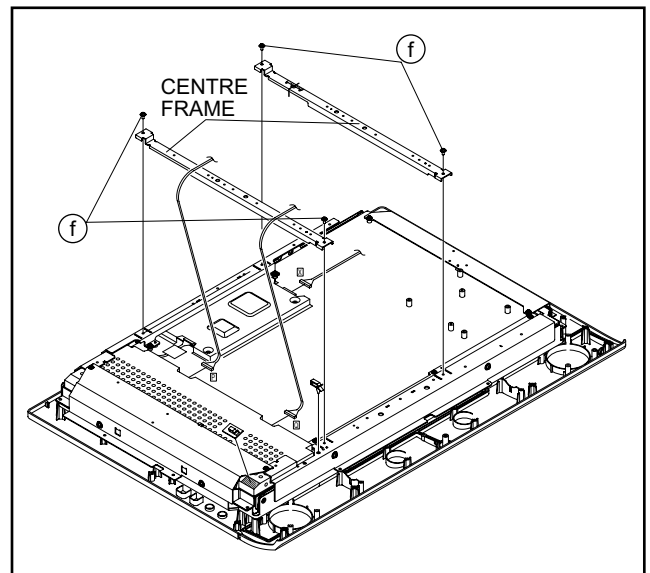
Fig.3-1-10B

(3) Remove the 2 screws [g] and 2 screws [h], then remove the RIGHT FRAME.
(4) Remove the 2 screws [g] and 2 screws [h], then remove the LEFT FRAME.
(5) Remove the 2 screws [j], and remove the TOP FRAME.
(6) Remove the 3 screws [k] and 2 screws [m], then remove the BOTTOM FRAME.
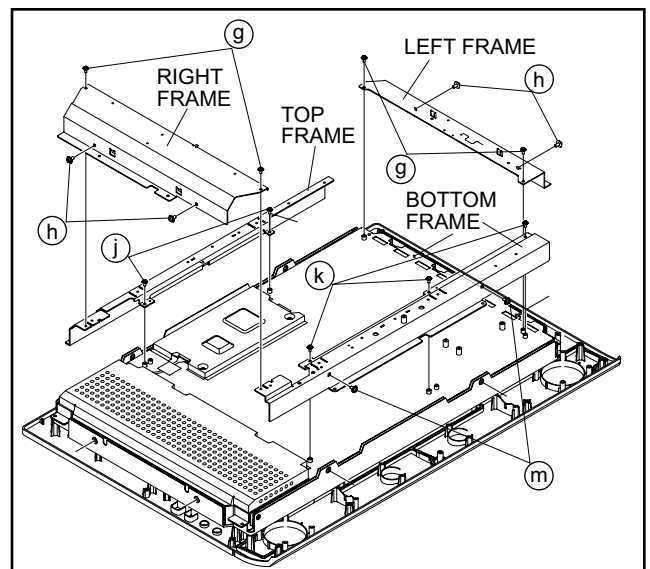
Fig.3-1-10C

3.2 REPLACEMENT OF MEMORY IC

This unit uses the nonvolatile memory IC.The memory IC memories data for video and deflection circuits. To replace the memory IC without the data written, malfunctions might occurred while power is on, and the normal image might not appear. When replacing the memory IC, be sure to use the IC written with the initial values of data.

3.2.1 PROCEDURE FOR REPLACING THE MEMORY IC

(1) Switch the power off and unplug the power cord from the wall outlet.
(2) Replacing the memory IC. [Be sure to use the IC written with the initial values of data]
(3) Plug the power cord into the wall outlet and switch the power on.
(4) Check and setting of SYSTEM CONSTANT SET
    a) Press the [INFORMATION] key and [MUTING] key on the remote control unit simultaneously.
    The SERVICE MENU screen will be displayed. (See Fig.1)
    b) In the SERVICE MENU, press the [INFORMATION] key and [MUTING] key simultaneously.
    Then, the SYSTEM CONSTANT SET screen will be displayed. (See FIg.2)
    c) Check whether the setting value of the SYSTEM CONSTANT SET is the same as these indicated in Table 1.
    d) Press the [INFORMATION] key twice to return to the normal screen.
(5) Receive channel setting
    Refer to the OPERATING INSTRUCTIONS and set the receive channels.
(6) User setting
    Memories the user setting items.The [USER SETTINGS OF MENU] setting is as next page.
(7) Setting of SERVICE MENU
    Check the setting items in the SERVICE MENU, set if necessary.For setting method, please refer to the [ADJUSTMENT PREPARATION] to [ADJUSTMENT PROCEDURE] of ADJUSTMENT section.

```
          SERVICE MENU SCREEN

              SERVICE MENU

        1. IF              2. V/C
        3. AUDIO           4. DD/CM
        5. VSM PRESET      6. STATUS
        7. VNR             8. IP
        9. SHIPPING (OFF)  0. BUS FREE

        1-9 : SELECT    i : EXIT
```

Fig.1

```
      SYSTEM CONSTANT SET SCREEN

           SYSTEM CONSTANT SET

        1. DESTINATION       EURO

        -/+ OK : STORE     i : EXIT
```
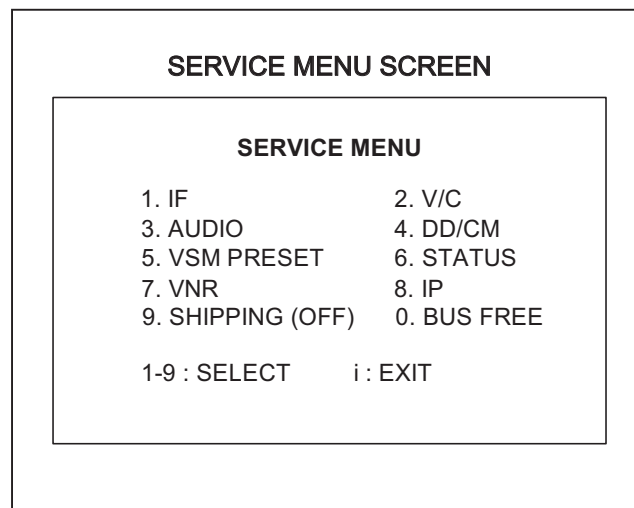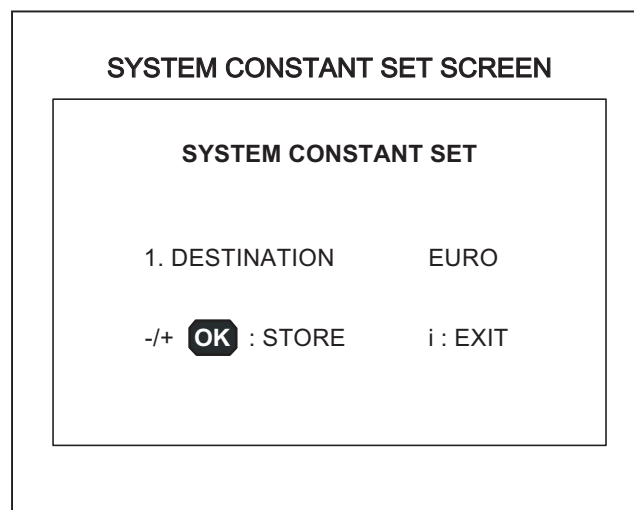
Fig.2

3.2.2 SETTING OF THE SYSTEM CONSTANT SET

Setting item	Setting content	Setting value
DESTINATION	ASIA / EURO	EURO

Table 1

3.2.3 FACTORY SHIPMENT SETTING

3.2.3.1 USER SETTING OF SWITCHS ON REMOTE CONTROL UNIT

Setting item	Setting value
POWER	OFF
CHANNEL	PR1
PRESET CHANNEL	Refer to OPERATION INSTRUCTIONS
VOLUME	10
ZOOM	PANORAMIC
3D SOUND	OFF

Table 2

3.2.3.2 USER SETTINGS OF MENU

Setting item	Setting value	Setting item	Setting value
POWER	OFF	**SOUND SETTING**	
CHANNEL	PR1	A. H. B	ON
		BASS	Center
PRESET CHANNEL	Refer to OPERATING INSTRUCTIONS	TREBLE	Center
		BALANCE	Center
VOLUME	10	SPEAKER	ON
PICTURE SETTING		BBE	ON
PICTURE MODE	BRIGHT	3D SOUND	OFF
COLOUR TEMP.	COOL	HEADPHONE VOLUME TV SPEAKER OUTPUT	20 OFF MAIN
PICTURE FEATURES		**EXT SETTING**	
DIGITAL VNR	AUTO	S-IN	---
Super DigiPure	AUTO	ID LIST	---
COLOUR SYSTEM	TV: Depend on PR/CH EXT: AUTO	DUBBING	EXT-1 → EXT-2
		FEATURES	
MOVIE THEATRE	AUTO	SLEEP TIMER	OFF
4:3 AUTO ASPECT	PANORAMIC	BLUE BACK	ON
COLOUR MANAGEMENT	ON	CHILD LOCK / CHANNEL GUARD SET ID NO	0000
PIP	Right below	CHILD LOCK / CHANNEL GUARD SET ID NO	0000
ZOOM	PANORAMIC	DECODER (EXT-2)	OFF
		INSTALL	
		LANGUAGE	ENGLISH
		EDIT	Only for preset channels

Table 3

3.2.3.3 VSM PRESET SETTING

Item No.	Item	Variable range	Setting value					
			PICTURE MODE			**COLOUR TEMP.**		
			BRIGHT	STD	SOFT	COOL	NORMAL	WARM
1	CONT	-16~16	6	0	0	-	-	-
2	BRIGHT	-16~16	-6	0	0	-	-	-
3	SHARP	-16~16	3	0	-2	-	-	-
4	COLOUR	-16~16	0	0	0	-	-	-
5	TINT	-16~16	0	0	0	-	-	-
6	B. LIGHT	-16~16	16	16	-8	-	-	-
1	WDR R	-64~63	-	-	-	-8	0	0
2	WDR G	-64~63	-	-	-	-3	0	-6
3	WDR B	-64~63	-	-	-	23	0	-3

Table 4

3.2.3.3.1 Setting of VSM PRESET

(1) Enter "5.VSM PRESET" from the SERVICE MENU.
(2) Press the [OK] key to select BRIGHT/STD/SOFT/COOL/NORMAL/WARM mode.
(3) Select the setting item using the [FUNCTION (UP/DOWN)] key.
(4) Set the value using the [FUNCTION (+/-)] key.
(5) Press the [OK] key to memorize the set value.
(6) Press the [INFORMATION] key twice to return to the normal screen.

3.2.3.4 SERVICE MENU SETTING ITEMS

Setting item	Setting value	Setting item	Setting value
1.IF	1.VCO 2.ATT ON/OFF	6.STATUS	**(Do not adjust)**
2.V/C	1.CUT OF R 2.CUT OF G 3.CUT OF B 4.DRIVE R 5.DRIVE G 6.DRIVE B 7.TWN HI R 8.TWN HI B 9.BRIGHT 10.CONT 11.TWN BRG 12.TWN CNT 13.COLOUR 14.HUE 15.BY GAIN 16.TWN COL 17.TWN TNT 18.B OF MR 19.B OF MB 20.B OF SR 21.B OF SB 22.M BOFST 23.M ROFST S01 ~ S99 A01 ~ A17 PDA01 ~ PDA12	7.VNR **(Do not adjust)**	1.MYLV 2.ONMVF 3.MYCOR 4.MYGA 5.YEGON 6.YEGL 7.YLTL 8.MCLV 9.MCGA 10.MCCOR 11.CLTL 12.YNGA 13.COR_OF 14.LPF_OF 15.YCTL 16.YNCL 17.YNCON
3.AUDIO **(Do not adjust)**	1.ERROR LIMIT 2.A2 ID THR 3.Q-PEAK 4.SOUND LEVEL / SOUND SYSTEM B/G	8.IP **(Do not adjust)**	PPA001 ~ PPA008 PPB001 ~ PPB036 PPC001 ~ PPC007 ADS001 ~ ADS034 IPA001 ~ IPA120 IPB001 ~ IPB088 IPC001 ~ IPC044 IPD001 ~ IPD058
4.DD/CM	DDT01 ~ DDT34 CMT01 ~ CMT57		
5.VSM PRESET	PICTURE MODE 1.CONT 2.BRIGHT 3.SHARP 4.COLOUR 5.TINT 6.B. LIGHT COLOUR TEMP. 1.WDR R 2.WDR G 3.WDR B	9.SHIPPING(OFF)	**(Do not use under the adjustment)**

Table 5

3.3 REPLACEMENT OF CHIP COMPONENT

3.3.1 CAUTIONS
(1) Avoid heating for more than 3 seconds.
(2) Do not rub the electrodes and the resist parts of the pattern.
(3) When removing a chip part, melt the solder adequately.
(4) Do not reuse a chip part after removing it.

3.3.2 SOLDERING IRON
(1) Use a high insulation soldering iron with a thin pointed end of it.
(2) A 30w soldering iron is recommended for easily removing parts.

3.3.3 REPLACEMENT STEPS

1. How to remove Chip parts
[Resistors, capacitors, etc.]
(1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.
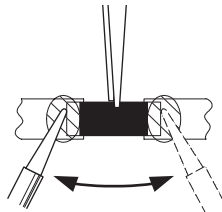
(2) Shift with the tweezers and remove the chip part.
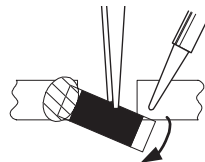
[Transistors, diodes, variable resistors, etc.]
(1) Apply extra solder to each lead.

SOLDER — SOLDER

(2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.
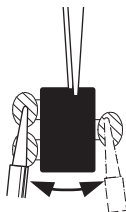
NOTE :
After removing the part, remove remaining solder from the pattern.

2. How to install Chip parts
[Resistors, capacitors, etc.]
(1) Apply solder to the pattern as indicated in the figure.
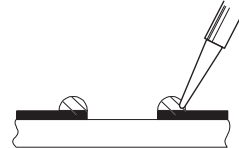
(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.
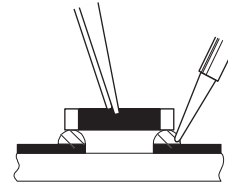
[Transistors, diodes, variable resistors, etc.]
(1) Apply solder to the pattern as indicated in the figure.
(2) Grasp the chip part with tweezers and place it on the solder.
(3) First solder lead **A** as indicated in the figure.

A
B
C
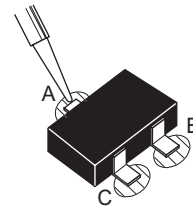
(4) Then solder leads **B** and **C**.

A
B
C
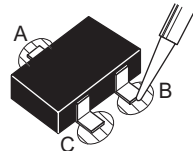
SECTION 4
ADJUSTMENT

4.1 ADJUSTMENT PREPARATION

(1) Prior to the following procedure, be sure to connect the receiver unit and the display unit.

(2) Adjustment of many Majority of the adjustment items for this unit is performed using the remote control.

(3) However, adjustment of some adjustment items is performed in the conventional way, i.e. with components on the boards.

(4) Ensure that the power supply is AC220V.

(5) Allow the set and the measuring devices to run for at least 30 minutes.

(6) Do not alter settings of items/preset values on the service screen that are not stated in this manual.

(7) Unless otherwise stated in the "ADJUSTMENT PROCEDURE" section, follow the settings for the features stated below using the remote control.

Setting item	Settings
PICTURE MODE	STANDARD
PICTURE adjustment	All center (00)
COLOUR TEMP.	NORMAL
DIGITAL VNR	MIN
Super Digi Pure	AUTO
SOUND adjustment	All center (00)
BBE	OFF
AHS	OFF
AHB	OFF
ZOOM	FULL

4.2 MEASURING INSTRUMENT AND FIXTURES

- DC voltmeter (or Digital voltmeter)
- Oscilloscope
- Signal generator (Pattern generator)
- Remote control unit

4.4 SERVICE MENU SCREEN

SERVICE MENU

SERVICE MENU

1. IF   2. V/C
3. AUDIO   4. DD/CM
5. VSM PRESET 6. STATUS
7. VNR   8. IP
9. SHIPPING (OFF) 0. BUS FREE

1-9 : SELECT   i : EXIT

---

4. DD/CM

DDT01 ~ DDT34
CMT01 ~ CMT57

DD/CM   PAL

DDT01   0000

- / + OK : STORE   i : EXIT
****

1.IF

IF SERVICE MENU

1. VCO
2. ATT ON/OFF   Do not adjust

1-2 : SELECT   i : EXIT

---

5. VSM PRESET

PICTURE MODE

BRIGHT
STD
SOFT

COLOUR TEMP.

COOL
NORMAL
WARM

VSM PRESET   BRIGHT

1.CONT   000

- / + OK : STORE   i : EXIT

1. CONT
2. BRIGHT
3. SHARP
4. COLOUR
5. TINT
6. B.LIGHT
1. WDR R
2. WDR G
3. WDR B

---

2. V/C

V/C   PAL

1. CUT OF R   0000

- / + OK : STORE   i : EXIT
****

1. CUT OF R	14. HUE
2. CUT OF G	15. BY GAIN
3. CUT OF B	16. TWN COL
4. DRIVE R	17. TWN TNT
5. DRIVE G	18. B OF MR
6. DRIVE B	19. B OF MB
7. TWN HI R	20. B OF SR
8. TWN HI B	21. B OF SB
9. BRIGHT	22. M BOFST
10. CONT	23. M ROFST
11. TWN BRG	S01 ~ S99
12. TWN CNT	A01 ~ A17
13. COLOUR	PDA01 ~ PDA12

Do not adjust

3. AUDIO

AUDIO

1. ERROR LIMIT   0100
ERROR LIMIT = 0000
C_AD_BITS   = 00000000

- / + OK : STORE   i : EXIT

1. ERROR LIMIT
2. A2 ID THR
3. Q-PEAK
4. SOUND SYSTEM B/G

---

6. STATUS

1. SOFT
2. TELETEXT
3. ASPECT
4. IC
5. DEBUG
6. PANEL

STATUS

1.SOFT

- / + OK : SELECT   i : EXIT

---

7. VNR

1. MYLV
2. ONMVF
3. MYCOR
4. MYGA
5. YEGON
6. YEGL
7. YLTL
8. MCLV
9. MCGA
10. MCCOR
11. CLTL
12. YNGA
13. COR_OF
14. LPF_OF
15. YCTL
16. YNCL
17. YNCON

VNR   LEVEL4

1.MYLV   000

- / + OK : STORE   i : EXIT

---

8. IP

PPA001 ~ PPA008
PPB001 ~ PPB036
PPC001 ~ PPC007
ADS001 ~ ADS034
IPA001 ~ IPA120
IPB001 ~ IPB088
IPC001 ~ IPC044
IPD001 ~ IPD058

IP   PANOLAMIC   PAL

0000   PPA001   0000

- / + OK : STORE   i : EXIT

4.5 BASIC OPERATION OF THE SERVICE MENU MODE [USING REMOTE CONTROL UNIT]

4.5.1 TOOLS OF SERVICE MENU OPERATION
Operate the SERVICE MENU with the remote control unit.

4.5.2 HOW TO ENTER THE SERVICE MENU MODE
(1) Press the [INFORMATION] key and the [MUTING] key of the REMOTE CONTROL UNIT simultaneously, and the SERVICE MENU screen of Fig.4 will be displayed.
(2) When the Main Menu is displayed, press any key of the [1] to [0] key to enter the corresponding menu mode.
 *Press any of the [1] to [0] keys before the Service Menu mode disappears.
(3) Select the service item using the [FUNCTION (▲/▼)] key.
(4) Set the value using the [FUNCTION (◀/▶)] key.
(5) Press the [OK] key to save the value.

```
SERVICE MENU SCREEN

        SERVICE MENU

1. IF              2. V/C
3. AUDIO           4. DD/CM
5. VSM PRESET      6. STATUS
7. VNR             8. IP
9. SHIPPING (OFF)  0. BUS FREE

1-9 : SELECT       i : EXIT
```
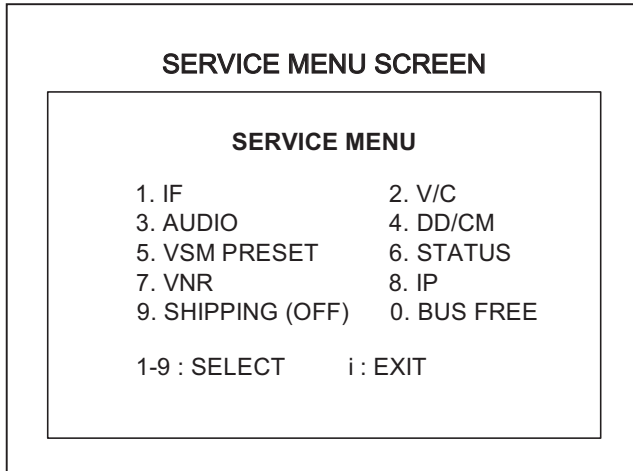
Fig.4

4.5.3 HOW TO EXIT THE SERVICE MENU MODE
Press the [INFORMATION] key to exit the Service Menu mode.

4.5.4 SERVICE CONTROL KEY LAYOUT ON THE REMOTE CONTROL UNIT
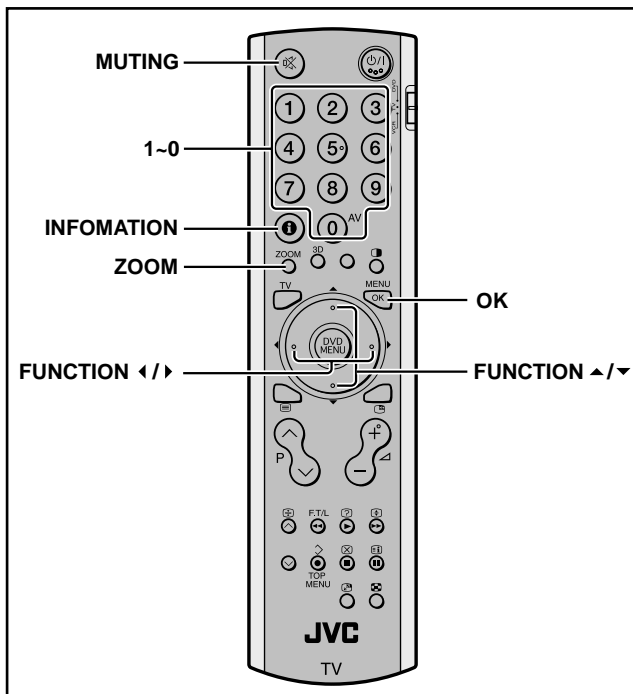
Fig.5

4.5.5 SETTINGS OF THE SERVICE MENUS

4.5.5.1 [1. IF] (VCO adjustment, ATT setting)
[Do not adjust]

4.5.5.2 [2. V/C] (VIDEO setting)
[Do not change settings of items that are not included in the "ADJUSTMENT PROCEDURE".]
Sets output data to the video circuit.
- [Function (▲/▼)] key
 For scrolling up/down the setting items.
- [Function (◀/▶)] key
 For scrolling up/down the setting values.

4.5.5.3 [3. AUDIO] (SOUND setting)
[Do not adjust]

4.5.5.4 [4. DD/CM] (Panel picture processing setting)
[Do not change settings of items that are not included in the "ADJUSTMENT PROCEDURE".]
Sets output data to the deflection circuit.
- [Function (▲/▼)] key
 For scrolling up/down the setting items.

$$\text{DDT01}\cdots\longleftrightarrow\text{CMT01}\cdots$$

- [Zoom (red)] key
 For switching to the next item.

$$\text{DDT01} \longrightarrow \text{CMT01} \longrightarrow$$

- [Function (◀/▶)] key
 For scrolling up/down the setting values.

4.5.5.5 [5. VSM PRESET] (PICTURE preset setting)
[Refer to page VSM PRESET SETTING.]

4.5.5.6 [6. STATUS]
(The version of software, the aspect, and the state of debugging are displayed.)
[Setting for this item is not required in servicing]

4.5.5.7 [7. VNR] (Noise reduction setting)
[Do not adjust]
Sets output data to the digital noise reduction circuit.

4.5.5.8 [8. IP] (DIST setting)
[Do not adjust]
Sets output data to the DIST circuit.

4.5.5.9 [9. SHIPPING (OFF)]
[Setting for this item is not required in servicing]

4.5.5.10 [10. BUE FREE]
[Setting for this item is not required in servicing]

4.6 DEFAULT VALUES IN THE SERVICE MENU SETTING MODE

- Perform fine-tuning based on the "default values" using the remote control when in the SERVICE MENU setting mode.
- The "default values" serve only as an indication rough standard and therefore the values with which optimal display can be achieved may be different from the default values. But, don't change the values that are not written in "ADJUSTMENT PROCEDURE". They are fixed values.

4.6.1 [2. V/C]

4.6.1.1 VIDEO SYSTEM

Item No.	Item	Variable range	Setting value								
			TV		EXT-1 / 2 / 3			EXT-4			
			PAL	SECAM	PAL	SECAM	NTSC	625i	525i	625p	525p
1	CUT OF R	0000~0255	0088	←	←	←	←	0000	←	←	←
2	CUT OF G	0000~0255	0101	←	←	←	←	0000	←	←	←
3	CUT OF B	0000~0255	0106	←	←	←	←	0000	←	←	←
4	DRIVE R	0000~0255	0129	←	←	←	←	0000	←	←	←
5	DRIVE G	0000~0255	0112	←	←	←	←	0000	←	←	←
6	DRIVE B	0000~0255	0110	←	←	←	←	0000	←	←	←
7	TWIN HI R	0000~0127	0071	←	←	←	←	0000	←	←	←
8	TWIN HI B	0000~0127	0068	←	←	←	←	0000	←	←	←
9	BRIGHT	0000~0255	0013	←	←	←	←	0000	←	←	←
10	CONT	0000~0015	0015	←	←	←	←	0000	←	←	←
11	TWN BRG	0000~0127	0075	←	←	←	←	-002	←	0000	←
12	TWN CNT	0000~0015	0006	←	←	←	←	0000	←	←	←
13	COLOUR	0000~0015	0009	←	0000	←	0007	0000	←	←	←
14	HUE	0000~0063	0000	←	0034	←	0034	0000	←	←	←
15	BY GAIN	0000~0063	0043	←	0000	←	0043	0000	←	←	←
16	TWN COL	0000~0015	0006	←	0002	←	0002	←	←	←	←
17	TWN TNT	0000~0063	0034	←	0000	←	0034	←	←	←	←
18	B OF MR	0000~0015	0008	←	←	←	←	←	←	←	←
19	B OF MB	0000~0015	0008	←	←	←	←	←	←	←	←
20	B OF SR	0000~0015	0008	←	←	←	←	←	←	←	←
21	B OF SB	0000~0015	0008	←	←	←	←	←	←	←	←
22	M BOFSET	0000~0007	0000	←	←	←	←	←	←	←	←
23	M ROFSET	0000~0007	0000	←	←	←	←	←	←	←	←

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
S01	COLOUR	0000~0255	0120	0120	0138
S02	HUE	-128~0127	0000	0000	0000
S03	(NO DISPLAY)	-128~0127	0000	0000	0000
S04	(NO DISPLAY)	-128~0127	0000	0000	0000
S05	BRIGHT	0000~0255	0055	0055	0060
S06	CONT	0000~0255	0128	0128	0128
S07	(NO DISPLAY)	-128~0127	0000	0000	0000
S08	(NO DISPLAY)	-128~0127	0000	0000	0000
S09	(NO DISPLAY)	0000~0255	0140	0140	0138
S10	(NO DISPLAY)	-128~0127	0000	0000	0000
S11	(NO DISPLAY)	-128~0127	0006	0006	0006
S12	(NO DISPLAY)	0000~0003	0000	0000	0000

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
S13	R GAIN	0000~0255	0249	0249	0249
S14	(NO DISPLAY)	-128~0127	0000	0000	0000
S15	G GAIN	0000~0255	0255	0255	0255
S16	(NO DISPLAY)	-128~0127	0001	0001	0001
S17	B GAIN	0000~0255	0254	0254	0254
S18	(NO DISPLAY)	-128~0127	0000	0000	0000
S19	(NO DISPLAY)	0000~0255	0128	0128	0128
S20	(NO DISPLAY)	-128~0127	0000	0000	0000
S21	(NO DISPLAY)	0000~0255	0128	0128	0128
S22	(NO DISPLAY)	-128~0127	0000	0000	0000
S23	(NO DISPLAY)	0000~0255	0128	0128	0128
S24	(NO DISPLAY)	-128~0127	0000	0000	0000
S25	(NO DISPLAY)	0000/0001	0000	0000	0000
S26	(NO DISPLAY)	0000/0001	0000	0000	0000
S27	(NO DISPLAY)	0000/0001	0000	0000	0000
S28	(NO DISPLAY)	0000/0001	0000	0000	0000
S29	(NO DISPLAY)	0000/0001	0000	0000	0000
S30	(NO DISPLAY)	0000~0031	0000	0000	0000
S31	(NO DISPLAY)	0000~0063	0002	0002	0002
S32	(NO DISPLAY)	0000~0063	0019	0019	0018
S33	(NO DISPLAY)	0000/0001	0001	0001	0001
S34	(NO DISPLAY)	0000/0001	0001	0001	0001
S35	(NO DISPLAY)	0000/0001	0000	0000	0000
S36	(NO DISPLAY)	0000~0031	0000	0000	0000
S37	(NO DISPLAY)	0000~0255	0220	0220	0220
S38	(NO DISPLAY)	0000~0063	0050	0050	0050
S39	(NO DISPLAY)	0000~0063	0060	0060	0060
S40	(NO DISPLAY)	0000/0001	0001	0001	0001
S41	(NO DISPLAY)	0000/0001	0001	0001	0001
S42	(NO DISPLAY)	0000~0003	0001	0001	0001
S43	(NO DISPLAY)	0000~0031	0009	0009	0009
S44	(NO DISPLAY)	0000~0003	0001	0001	0001
S45	(NO DISPLAY)	0000~0003	0002	0002	0002
S46	(NO DISPLAY)	0000~0015	0015	0015	0015
S47	(NO DISPLAY)	0000~0015	0015	0015	0015
S48	(NO DISPLAY)	0000~0015	0015	0015	0015
S49	(NO DISPLAY)	0000/0001	0000	0000	0000
S50	(NO DISPLAY)	0000~0255	0002	0002	0002
S51	(NO DISPLAY)	0000/0001	0000	0000	0000
S52	(NO DISPLAY)	0000~0255	0076	0076	0076
S53	(NO DISPLAY)	0000/0001	0000	0000	0000
S54	(NO DISPLAY)	0000~0255	0006	0006	0006
S55	(NO DISPLAY)	0000/0001	0000	0000	0000
S56	(NO DISPLAY)	0000~0255	0094	0094	0094
S57	(NO DISPLAY)	0000~0255	0000	0000	0000

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
S58	(NO DISPLAY)	0000~0015	0000	0000	0000
S59	(NO DISPLAY)	0000~0255	0000	0000	0000
S60	(NO DISPLAY)	0000~0015	0000	0000	0000
S61	(NO DISPLAY)	0000/0001	0001	0001	0001
S62	(NO DISPLAY)	0000~0127	0016	0016	0016
S63	(NO DISPLAY)	0000/0001	0000	0000	0000
S64	(NO DISPLAY)	0000~0127	0000	0000	0000
S65	(NO DISPLAY)	0000~0003	0002	0002	0002
S66	(NO DISPLAY)	0000~0003	0001	0001	0001
S67	(NO DISPLAY)	0000~0003	0002	0002	0003
S68	(NO DISPLAY)	0000~0015	0000	0000	0000
S69	(NO DISPLAY)	0000~0063	0019	0019	0019
S70	(NO DISPLAY)	0000/0001	0001	0001	0001
S71	(NO DISPLAY)	0000~0255	0255	0255	0255
S72	(NO DISPLAY)	0000~0255	0255	0255	0255
S73	(NO DISPLAY)	0000~0255	0255	0255	0255
S74	(NO DISPLAY)	0000~0031	0000	0000	0000
S75	(NO DISPLAY)	0000~0031	0000	0000	0000
S76	(NO DISPLAY)	-128~0128	0000	0000	0000
S77	(NO DISPLAY)	-128~0128	0000	0000	0000
S78	(NO DISPLAY)	0000~0255	0255	0255	0255
S79	(NO DISPLAY)	0000~0255	0000	0000	0000
S80	(NO DISPLAY)	0000~0255	0255	0255	0255
S81	(NO DISPLAY)	0000~0255	0000	0000	0000
S82	(NO DISPLAY)	0000~0255	0255	0255	0255
S83	(NO DISPLAY)	0000~0255	0000	0000	0000
S84	(NO DISPLAY)	0000~0255	0216	0216	0216
S85	(NO DISPLAY)	0000~0255	0127	0127	0127
S86	(NO DISPLAY)	0000~0255	0127	0127	0127
S87	(NO DISPLAY)	0000~0003	0003	0003	0003
S88	(NO DISPLAY)	0000~0007	0000	0000	0000
S89	(NO DISPLAY)	0000~0255	0000	0000	0000
S90	(NO DISPLAY)	0000~0127	0000	0000	0000
S91	(NO DISPLAY)	0000~0007	0007	0007	0007
S92	(NO DISPLAY)	0000~0031	0031	0031	0031
S93	(NO DISPLAY)	0000~0007	0007	0007	0007
S94	(NO DISPLAY)	0000~0031	0031	0031	0031
S95	(NO DISPLAY)	0000~0255	0060	0060	0050
S96	(NO DISPLAY)	0000~0015	0003	0003	0006
S97	(NO DISPLAY)	0000~0063	0040	0040	0040
S98	(NO DISPLAY)	0000~0063	0000	0000	0000
S99	(NO DISPLAY)	0000~0063	0000	0000	0000

4.6.1.2 AUDIO SYSTEM

Item No.	Item	Variable range	Setting value
A01	(NO DISPLAY)	0000~0007	0001
A02	(NO DISPLAY)	0000~0007	0001
A03	(NO DISPLAY)	0000~0007	0001
A04	(NO DISPLAY)	0000~0007	0000
A05	(NO DISPLAY)	0000~0009	0003
A06	(NO DISPLAY)	0000~0015	0004
A07	(NO DISPLAY)	0000~0015	0006
A08	(NO DISPLAY)	0000~0015	0003
A09	(NO DISPLAY)	0000~0007	0006
A10	(NO DISPLAY)	0000~0007	0004
A11	(NO DISPLAY)	0000~0063	0063
A12	(NO DISPLAY)	0000~0063	0063
A13	(NO DISPLAY)	0000~0003	0000
A14	(NO DISPLAY)	0000~0007	0000
A15	(NO DISPLAY)	0000~0003	0000
A16	(NO DISPLAY)	0000~0003	0000
A17	(NO DISPLAY)	0000~0003	0000

Item No.	Item	Variable range	Setting value
PDA01	(NO DISPLAY)	0000~0255	0000
PDA02	(NO DISPLAY)	0000~0255	0031
PDA03	(NO DISPLAY)	0000~0255	0085
PDA04	(NO DISPLAY)	0000~0255	0004
PDA05	(NO DISPLAY)	0000/0001	0001
PDA06	(NO DISPLAY)	0000/0001	0000
PDA07	(NO DISPLAY)	0000~0255	0150
PDA08	(NO DISPLAY)	0000~0255	0150
PDA09	(NO DISPLAY)	0000~0255	0002
PDA10	(NO DISPLAY)	0000~0255	0060
PDA11	(NO DISPLAY)	0000~0255	0000
PDA12	(NO DISPLAY)	0000~0127	0000

4.6.2 [3.AUDIO] (MULTISOUND SYSTEM) (*All fixed)

Item No.	Item	Variable range	Setting value
1	ERROR LIMIT	0000~0FF0	0100
2	A2 ID THR	0000~00FF	0019
3	Q-PEAK	-	-
4	SOUND LEVEL	F00F~FFFF	FFFF

4.6.3 [4.DD/CM]

NOTE:
- For reference, initial setting values (except OSD-G/B/R) in the following conditions are written here.
- Input signal : PAL/SECAM/NTSC
- Picture mode : Standard
- Zoom : Full
- Multi screen : Single screen
- Colour temp. : Normal

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
DDT01	(NO DISPLAY)	0000~0015	0000	0000	0000
DDT02	(NO DISPLAY)	0000~0255	0192	0192	0192
DDT03	(NO DISPLAY)	0000~0255	0255	0255	0255
DDT04	(NO DISPLAY)	0000~0255	0255	0255	0255
DDT05	(NO DISPLAY)	0000~0255	0255	0255	0000
DDT06	(NO DISPLAY)	0000~0255	0255	0255	0255
DDT07	(NO DISPLAY)	0000~0003	0000	0000	0000
DDT08	(NO DISPLAY)	0000~0255	0255	0255	0255
DDT09	(NO DISPLAY)	0000~0003	0000	0000	0000
DDT10	(NO DISPLAY)	0000~0255	0000	0000	0000
DDT11	(NO DISPLAY)	0000~0007	0000	0000	0000
DDT12	(NO DISPLAY)	0000~0255	0090	0090	0090
DDT13	(NO DISPLAY)	0000~0255	0000	0000	0000
DDT14	(NO DISPLAY)	0000~0003	0000	0000	0000
DDT15	(NO DISPLAY)	0000~0007	0000	0000	0000
DDT16	(NO DISPLAY)	0000~0255	0021	0021	0021
DDT17	(NO DISPLAY)	0000/0001	0000	0000	0000
DDT18	(NO DISPLAY)	0000/0001	0000	0000	0000
DDT19	(NO DISPLAY)	0000~0063	0001	0001	0001
DDT20	(NO DISPLAY)	0000~0015	0000	0000	0000
DDT21	(NO DISPLAY)	0000~0015	0000	0000	0000
DDT22	(NO DISPLAY)	0000~0015	0000	0000	0000
DDT23	(NO DISPLAY)	0000~0015	0000	0000	0000
DDT24	(NO DISPLAY)	0000/0001	0000	0000	0000
DDT25	(NO DISPLAY)	0000/0001	0000	0000	0000
DDT26	(NO DISPLAY)	0000/0001	0000	0000	0000
DDT27	(NO DISPLAY)	0000~0007	0000	0000	0000
DDT28	(NO DISPLAY)	0000~0255	0250	0250	0250
DDT29	(NO DISPLAY)	0000~0003	0000	0000	0000
DDT30	(NO DISPLAY)	0000/0001	0000	0000	0000
DDT31	(NO DISPLAY)	0000~0007	0005	0005	0005
DDT32	(NO DISPLAY)	0000~0255	0170	0170	0170
DDT33	(NO DISPLAY)	0000~0255	0000	0000	0000
DDT34	(NO DISPLAY)	0000~0255	0032	0032	0032

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
CMT01	(NO DISPLAY)	0000~0003	0000	0000	0000
CMT02	(NO DISPLAY)	0000~0255	0090	0090	0090

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
CMT03	(NO DISPLAY)	0000~0255	0030	0030	0020
CMT04	(NO DISPLAY)	0000~0255	0030	0030	0030
CMT05	(NO DISPLAY)	0000~0063	0059	0059	0060
CMT06	(NO DISPLAY)	-128~0127	0005	0005	-002
CMT07	(NO DISPLAY)	-128~0127	0002	0002	0010
CMT08	(NO DISPLAY)	-128~0127	0000	0000	0000
CMT09	(NO DISPLAY)	-128~0127	0000	0000	0003
CMT10	(NO DISPLAY)	0000~0003	0000	0000	0000
CMT11	(NO DISPLAY)	0000~0255	0160	0160	0160
CMT12	(NO DISPLAY)	0000~0255	0020	0020	0020
CMT13	(NO DISPLAY)	0000~0255	0020	0020	0020
CMT14	(NO DISPLAY)	0000~0063	0000	0000	0059
CMT15	(NO DISPLAY)	-128~0127	0006	0006	-003
CMT16	(NO DISPLAY)	-128~0127	0005	0005	0005
CMT17	(NO DISPLAY)	-128~0127	0000	0000	0000
CMT18	(NO DISPLAY)	-128~0127	0005	0005	0000
CMT19	(NO DISPLAY)	0000~0003	0000	0000	0000
CMT20	(NO DISPLAY)	0000~0255	0196	0196	0196
CMT21	(NO DISPLAY)	0000~0255	0030	0030	0030
CMT22	(NO DISPLAY)	0000~0255	0050	0050	0055
CMT23	(NO DISPLAY)	0000~0063	0061	0061	0000
CMT24	(NO DISPLAY)	-128~0127	-003	-003	0003
CMT25	(NO DISPLAY)	-128~0127	0022	0022	0012
CMT26	(NO DISPLAY)	-128~0127	0006	0006	0005
CMT27	(NO DISPLAY)	-128~0127	0020	0020	0012
CMT28	(NO DISPLAY)	0000~0003	0001	0001	0001
CMT29	(NO DISPLAY)	0000~0255	0070	0070	0070
CMT30	(NO DISPLAY)	0000~0255	0035	0035	0035
CMT31	(NO DISPLAY)	0000~0255	0040	0040	0040
CMT32	(NO DISPLAY)	0000~0063	0000	0000	0000
CMT33	(NO DISPLAY)	-128~0127	0005	0005	0002
CMT34	(NO DISPLAY)	-128~0127	0016	0016	0015
CMT35	(NO DISPLAY)	-128~0127	0000	0000	-004
CMT36	(NO DISPLAY)	-128~0127	0016	0016	0020
CMT37	(NO DISPLAY)	0000~0255	0064	0064	0064
CMT38	(NO DISPLAY)	0000~0255	0066	0066	0068
CMT39	(NO DISPLAY)	0000~0255	0078	0078	0078
CMT40	(NO DISPLAY)	-128~0127	0000	0000	0000
CMT41	(NO DISPLAY)	-128~0127	0005	0005	0004
CMT42	(NO DISPLAY)	0000/0001	0000	0000	0000
CMT43	(NO DISPLAY)	0000~0255	0080	0080	0080
CMT44	(NO DISPLAY)	0000/0001	0001	0001	0001
CMT45	(NO DISPLAY)	0000~0255	0080	0080	0080
CMT46	(NO DISPLAY)	0000/0001	0000	0000	0000
CMT47	(NO DISPLAY)	0000~0255	0080	0080	0080

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
CMT48	(NO DISPLAY)	0000/0001	0000	0000	0000
CMT49	(NO DISPLAY)	0000/0001	0001	0001	0001
CMT50	(NO DISPLAY)	0000~0031	0021	0021	0021
CMT51	(NO DISPLAY)	0000~0031	0021	0021	0021
CMT52	(NO DISPLAY)	0000/0001	0000	0000	0000
CMT53	(NO DISPLAY)	0000/0001	0000	0000	0000
CMT54	(NO DISPLAY)	0000~0003	0000	0000	0000
CMT55	(NO DISPLAY)	0000/0001	0000	0000	0000
CMT56	(NO DISPLAY)	0000/0001	0001	0001	0001
CMT57	(NO DISPLAY)	0000/0001	0000	0000	0000

4.6.4 [7.VNR] (*All fixed)

NOTE:
- For reference, initial setting values in the following conditions are written here.
- Input signal : PAL/SECAM/NTSC
- Picture mode : Standard
- Zoom : Full
- Multi screen : Single screen
- Colour temp. : Normal

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
1	MYLV	0000~000F	000E	000E	000E
2	ONMVF	0000/0001	0001	0001	0001
3	MYCOR	0000~001F	0003	0003	0003
4	MYGA	0000~0003	0002	0002	0002
5	YEGON	0000/0001	0001	0001	0001
6	YEGL	0000~000F	0000	0000	0000
7	YLTL	0000~007F	0009	0009	0009
8	MCLV	0000~000F	0008	0008	0008
9	MCGA	0000~0003	0002	0002	0002
10	MCCOR	0000~001F	0003	0003	0003
11	CLTL	0000~007F	0009	0009	0009
12	YNGA	0000~0003	0003	0003	0003
13	COR_OF	0000/0001	0000	0000	0000
14	LPF_OF	0000/0001	0000	0000	0000
15	YCTL	0000~000F	0004	0004	0004
16	YNCL	0000~000F	000E	000E	000E
17	YNCON	0000/0001	0001	0001	0001

4.6.5 [8.IP] (*All fixed)

NOTE:
- For reference, initial setting values in the following conditions are written here.
- Input signal : PAL/SECAM/NTSC
- Picture mode : Standard
- Zoom : Full
- Multi screen : Single screen
- Colour temp. : Normal

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
PPA001	(NO DISPLAY)	0000~00FF	0040	0040	0040
PPA002	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPA003	(NO DISPLAY)	0000~00FF	0053	0053	005A
PPA004	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPA005	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPA006	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPA007	(NO DISPLAY)	0000~00FF	0053	0053	005A
PPA008	(NO DISPLAY)	0000~00FF	0031	0031	0023

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
PPB001	(NO DISPLAY)	0000~001F	0000	0000	0000
PPB002	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB003	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB004	(NO DISPLAY)	0000~001F	0000	0000	0000
PPB005	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB006	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB007	(NO DISPLAY)	0000~001F	0000	0000	0000
PPB008	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB009	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB010	(NO DISPLAY)	0000~001F	0000	0000	0000
PPB011	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB012	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB013	(NO DISPLAY)	0000~001F	0000	0000	0000
PPB014	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB015	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB016	(NO DISPLAY)	0000~001F	0000	0000	0000
PPB017	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB018	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB019	(NO DISPLAY)	0000~001F	0000	0000	0000
PPB020	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB021	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB022	(NO DISPLAY)	0000~001F	0000	0000	0000
PPB023	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB024	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB025	(NO DISPLAY)	0000~001F	0000	0000	0000
PPB026	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB027	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB028	(NO DISPLAY)	0000~001F	0000	0000	0000

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
PPB029	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB030	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB031	(NO DISPLAY)	0000~001F	0000	0000	0000
PPB032	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB033	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB034	(NO DISPLAY)	0000~001F	0000	0000	0000
PPB035	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPB036	(NO DISPLAY)	0000~00FF	0000	0000	0000

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
PPC001	(NO DISPLAY)	0000~000F	0000	0000	0000
PPC002	(NO DISPLAY)	0000~00FF	000E	000E	000E
PPC003	(NO DISPLAY)	0000~00FF	0000	0000	0000
PPC004	(NO DISPLAY)	0000~000F	0000	0000	0000
PPC005	(NO DISPLAY)	0000~00FF	007C	007C	007C
PPC006	(NO DISPLAY)	0000~000F	0000	0000	0000
PPC007	(NO DISPLAY)	0000~00FF	0000	0000	0000

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
ADS001	(NO DISPLAY)	0000~00FF	00D7	00D7	00D7
ADS002	(NO DISPLAY)	0000~000F	0000F	0000F	0000F
ADS003	(NO DISPLAY)	0000~0003	0001	0001	0001
ADS004	(NO DISPLAY)	0000~0007	0005	0005	0005
ADS005	(NO DISPLAY)	0000~001F	0016	0016	0016
ADS006	(NO DISPLAY)	0000~00FF	0028	0028	0028
ADS007	(NO DISPLAY)	0000~00FF	0096	0096	0096
ADS008	(NO DISPLAY)	0000~00FF	0020	0020	0020
ADS009	(NO DISPLAY)	0000~00FF	000FF	000FF	000FF
ADS010	(NO DISPLAY)	0000~00FF	000FF	000FF	000FF
ADS011	(NO DISPLAY)	0000~00FF	000FF	000FF	000FF
ADS012	(NO DISPLAY)	0000~007F	004A	004A	004A
ADS013	(NO DISPLAY)	0000~007F	0051	0051	0051
ADS014	(NO DISPLAY)	0000~007F	0042	0042	0042
ADS015	(NO DISPLAY)	0000/0001	0001	0001	0001
ADS016	(NO DISPLAY)	0000/0001	0001	0001	0001
ADS017	(NO DISPLAY)	0000/0001	0000	0000	0000
ADS018	(NO DISPLAY)	0000/0001	0001	0001	0001
ADS019	(NO DISPLAY)	0000/0001	0000	0000	0000
ADS020	(NO DISPLAY)	0000/0001	0000	0000	0000
ADS021	(NO DISPLAY)	0000/0001	0001	0001	0001
ADS022	(NO DISPLAY)	0000/0001	0000	0000	0000
ADS023	(NO DISPLAY)	0000/0001	0000	0000	0000
ADS024	(NO DISPLAY)	0000/0001	0001	0001	0001
ADS025	(NO DISPLAY)	0000/0001	0000	0000	0000

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
ADS026	(NO DISPLAY)	0000/0001	0001	0001	0001
ADS027	(NO DISPLAY)	0000/0001	0001	0001	0001
ADS028	(NO DISPLAY)	0000/0001	0001	0001	0001
ADS029	(NO DISPLAY)	0000/0001	0000	0000	0000
ADS030	(NO DISPLAY)	0000~001F	0003	0003	0003
ADS031	(NO DISPLAY)	0000/0001	0001	0001	0001
ADS032	(NO DISPLAY)	0000/0001	0000	0000	0000
ADS033	(NO DISPLAY)	0000/0001	0001	0001	0001
ADS034	(NO DISPLAY)	0000~00FF	0032	0032	0032

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
IPA001	(NO DISPLAY)	0000/0001	0001	0001	0001
IPA002	(NO DISPLAY)	0000~003F	0022	0022	0022
IPA003	(NO DISPLAY)	0000~003F	0022	0022	0022
IPA004	(NO DISPLAY)	0000~003F	0000	0000	0022
IPA005	(NO DISPLAY)	0000~0003	0000	0000	0000
IPA006	(NO DISPLAY)	0000~0003	0000	0000	0000
IPA007	(NO DISPLAY)	0000~000F	000F	000F	000F
IPA008	(NO DISPLAY)	0000~003F	0008	0008	0008
IPA009	(NO DISPLAY)	0000~003F	000B	000B	0005
IPA010	(NO DISPLAY)	0000~003F	0019	0019	0019
IPA011	(NO DISPLAY)	0000~003F	0015	0015	0015
IPA012	(NO DISPLAY)	0000~003F	0022	0022	0022
IPA013	(NO DISPLAY)	0000~0003	0001	0001	0001
IPA014	(NO DISPLAY)	0000~0003	0001	0001	0001
IPA015	(NO DISPLAY)	0000~000F	000F	000F	000F
IPA016	(NO DISPLAY)	0000~003F	0003	0003	0003
IPA017	(NO DISPLAY)	0000/0001	0001	0001	0001
IPA018	(NO DISPLAY)	0000~003F	000D	000D	000D
IPA019	(NO DISPLAY)	0000/0001	0001	0001	0001
IPA020	(NO DISPLAY)	0000/0001	0001	0001	0001
IPA021	(NO DISPLAY)	0000~003F	0030	0030	0030
IPA022	(NO DISPLAY)	0000~0003	0001	0001	0001
IPA023	(NO DISPLAY)	0000~003F	000A	000A	000A
IPA024	(NO DISPLAY)	0000/0001	0001	0001	0001
IPA025	(NO DISPLAY)	0000/0001	0001	0001	0001
IPA026	(NO DISPLAY)	0000~003F	0030	0030	0030
IPA027	(NO DISPLAY)	0000~0003	0001	0001	0001
IPA028	(NO DISPLAY)	0000~003F	000A	000A	000A
IPA029	(NO DISPLAY)	0000~003F	0000	0000	0000
IPA030	(NO DISPLAY)	0000~000F	0000	0000	0000
IPA031	(NO DISPLAY)	0000~0007	0000	0000	0000
IPA032	(NO DISPLAY)	0000~003F	0000	0000	0000
IPA033	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA034	(NO DISPLAY)	0000~003F	0000	0000	0000

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
IPA035	(NO DISPLAY)	0000/0001	0001	0001	0001
IPA036	(NO DISPLAY)	0000~003F	000D	000D	000D
IPA037	(NO DISPLAY)	0000~003F	000D	000D	000D
IPA038	(NO DISPLAY)	0000~003F	0010	0010	0010
IPA039	(NO DISPLAY)	0000~0003	0001	0001	0001
IPA040	(NO DISPLAY)	0000~0003	0001	0001	0001
IPA041	(NO DISPLAY)	0000~000F	000F	000F	000F
IPA042	(NO DISPLAY)	0000~003F	0005	0005	0005
IPA043	(NO DISPLAY)	0000~003F	0008	0008	0008
IPA044	(NO DISPLAY)	0000~003F	0020	0020	0020
IPA045	(NO DISPLAY)	0000~003F	0020	0020	0020
IPA046	(NO DISPLAY)	0000~003F	0020	0020	0020
IPA047	(NO DISPLAY)	0000~0003	0002	0002	0002
IPA048	(NO DISPLAY)	0000~0003	0002	0002	0002
IPA049	(NO DISPLAY)	0000~000F	0007	0007	0007
IPA050	(NO DISPLAY)	0000~003F	0008	0008	0008
IPA051	(NO DISPLAY)	0000/0001	0001	0001	0001
IPA052	(NO DISPLAY)	0000~003F	0008	0008	0008
IPA053	(NO DISPLAY)	0000/0001	0001	0001	0001
IPA054	(NO DISPLAY)	0000/0001	0001	0001	0001
IPA055	(NO DISPLAY)	0000~003F	0015	0015	0015
IPA056	(NO DISPLAY)	0000~0003	0000	0000	0000
IPA057	(NO DISPLAY)	0000~003F	000A	000A	000A
IPA058	(NO DISPLAY)	0000/0001	0001	0001	0001
IPA059	(NO DISPLAY)	0000/0001	0001	0001	0001
IPA060	(NO DISPLAY)	0000~003F	0015	0015	0015
IPA061	(NO DISPLAY)	0000~0003	0000	0000	0000
IPA062	(NO DISPLAY)	0000~003F	000A	000A	000A
IPA063	(NO DISPLAY)	0000~003F	003F	003F	003F
IPA064	(NO DISPLAY)	0000~000F	0006	0006	0006
IPA065	(NO DISPLAY)	0000~0007	0001	0001	0001
IPA066	(NO DISPLAY)	0000~003F	0008	0008	0008
IPA067	(NO DISPLAY)	0000/0001	0001	0001	0001
IPA068	(NO DISPLAY)	0000~003F	0027	0027	0027
IPA069	(NO DISPLAY)	0000~0003	0000	0000	0000
IPA070	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPA071	(NO DISPLAY)	0000~000F	0005	0005	0005
IPA072	(NO DISPLAY)	0000~00FF	00DB	00DB	00DB
IPA073	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA074	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA075	(NO DISPLAY)	0000~00FF	0018	0018	0018
IPA076	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA077	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA078	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA079	(NO DISPLAY)	0000/0001	0000	0000	0000

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
IPA080	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA081	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA082	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA083	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA084	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA085	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA086	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA087	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA088	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA089	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA090	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA091	(NO DISPLAY)	0000~000F	0000	0000	0000
IPA092	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPA093	(NO DISPLAY)	0000~000F	000F	000F	000F
IPA094	(NO DISPLAY)	0000~00FF	00FF	00FF	00FF
IPA095	(NO DISPLAY)	0000~000F	0000	0000	0000
IPA096	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPA097	(NO DISPLAY)	0000~000F	000F	000F	000F
IPA098	(NO DISPLAY)	0000~00FF	00FF	00FF	00FF
IPA099	(NO DISPLAY)	0000~000F	0000	0000	0000
IPA100	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPA101	(NO DISPLAY)	0000~000F	0000	0000	0000
IPA102	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPA103	(NO DISPLAY)	0000~000F	0000	0000	0000
IPA104	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPA105	(NO DISPLAY)	0000~000F	0000	0000	0000
IPA106	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPA107	(NO DISPLAY)	0000~000F	0000	0000	0000
IPA108	(NO DISPLAY)	0000~00FF	0080	0080	0080
IPA109	(NO DISPLAY)	0000~000F	0000	0000	0000
IPA110	(NO DISPLAY)	0000~00FF	0040	0040	0040
IPA111	(NO DISPLAY)	0000~000F	0005	0005	0005
IPA112	(NO DISPLAY)	0000~00FF	0040	0040	0040
IPA113	(NO DISPLAY)	0000~000F	0000	0000	0000
IPA114	(NO DISPLAY)	0000~00FF	00C0	00C0	00C0
IPA115	(NO DISPLAY)	0000~000F	0002	0002	0002
IPA116	(NO DISPLAY)	0000~00FF	00EF	00EF	00EF
IPA117	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA118	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA119	(NO DISPLAY)	0000/0001	0000	0000	0000
IPA120	(NO DISPLAY)	0000/0001	0000	0000	0000

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
IPB001	(NO DISPLAY)	0000~00FF	0001	0001	0001
IPB002	(NO DISPLAY)	0000~00FF	0001	0001	0003
IPB003	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB004	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB005	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB006	(NO DISPLAY)	0000~00FF	00EC	00EC	00ED
IPB007	(NO DISPLAY)	0000~000F	0002	0002	0002
IPB008	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB009	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB010	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB011	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB012	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB013	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB014	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB015	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB016	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB017	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB018	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB019	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB020	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB021	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB022	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB023	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB024	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB025	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB026	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB027	(NO DISPLAY)	0000~000F	000F	000F	000F
IPB028	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB029	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB030	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB031	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB032	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB033	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB034	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB035	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB036	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB037	(NO DISPLAY)	0000/0001	0000	0000	0000
IPB038	(NO DISPLAY)	0000~0007	0000	0000	0000
IPB039	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB040	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB041	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB042	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB043	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB044	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB045	(NO DISPLAY)	0000~000F	0001	0001	0001

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
IPB046	(NO DISPLAY)	0000~00FF	008B	008B	008B
IPB047	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB048	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB049	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB050	(NO DISPLAY)	0000~00FF	000F	000F	000F
IPB051	(NO DISPLAY)	0000~000F	0006	0006	0006
IPB052	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB053	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB054	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB055	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB056	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB057	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB058	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB059	(NO DISPLAY)	0000~0007	0000	0000	0000
IPB060	(NO DISPLAY)	0000~0003	0000	0000	0000
IPB061	(NO DISPLAY)	0000~0003	0000	0000	0000
IPB062	(NO DISPLAY)	0000/0001	0000	0000	0000
IPB063	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB064	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB065	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB066	(NO DISPLAY)	0000/0001	00C8	00C8	00C8
IPB067	(NO DISPLAY)	0000~000F	0006	0006	0006
IPB068	(NO DISPLAY)	0000~000F	0040	0040	0040
IPB069	(NO DISPLAY)	0000~000F	0001	0001	0001
IPB070	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB071	(NO DISPLAY)	0000~00FF	0001	0001	0001
IPB072	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB073	(NO DISPLAY)	0000~00FF	0050	0050	0050
IPB074	(NO DISPLAY)	0000/0001	0080	0080	0080
IPB075	(NO DISPLAY)	0000/0001	0080	0080	0080
IPB076	(NO DISPLAY)	0000/0001	0000	0000	0000
IPB077	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB078	(NO DISPLAY)	0000/0001	0000	0000	0000
IPB079	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB080	(NO DISPLAY)	0000~000F	000F	000F	000F
IPB081	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB082	(NO DISPLAY)	0000~000F	0000	0000	0000
IPB083	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPB084	(NO DISPLAY)	0000/0001	0000	0000	0000
IPB085	(NO DISPLAY)	0000/0001	0000	0000	0000
IPB086	(NO DISPLAY)	0000/0001	0000	0000	0000
IPB087	(NO DISPLAY)	0000~000F	000B	000B	000B
IPB088	(NO DISPLAY)	0000/0001	0001	0001	0001

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
IPC001	(NO DISPLAY)	0000~0003	0002	0002	0002
IPC002	(NO DISPLAY)	0000~00FF	00EA	00EA	00EA
IPC003	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC004	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC005	(NO DISPLAY)	0000~000F	0000	0000	0000
IPC006	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPC007	(NO DISPLAY)	0000~000F	0005	0005	0005
IPC008	(NO DISPLAY)	0000~00FF	00DB	00DB	00DB
IPC009	(NO DISPLAY)	0000~000F	0007	0007	0006
IPC010	(NO DISPLAY)	0000~00FF	00B9	00B9	0071
IPC011	(NO DISPLAY)	0000~000F	0004	0004	0004
IPC012	(NO DISPLAY)	0000~00FF	00CE	00CE	00CE
IPC013	(NO DISPLAY)	0000~0003	0000	0000	0000
IPC014	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC015	(NO DISPLAY)	0000/0001	0001	0001	0001
IPC016	(NO DISPLAY)	0000~00FF	001F	001F	0003
IPC017	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC018	(NO DISPLAY)	0000~007F	0000	0000	0000
IPC019	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC020	(NO DISPLAY)	0000~007F	0001	0001	0001
IPC021	(NO DISPLAY)	0000~000F	0000	0000	0000
IPC022	(NO DISPLAY)	0000~00FF	00FE	00FE	00FE
IPC023	(NO DISPLAY)	0000~0003	0000	0000	0000
IPC024	(NO DISPLAY)	0000~00FF	005C	005C	0040
IPC025	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC026	(NO DISPLAY)	0000~007F	0020	0020	0020
IPC027	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC028	(NO DISPLAY)	0000~007F	0000	0000	0000
IPC029	(NO DISPLAY)	0000/0001	0001	0001	0001
IPC030	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC031	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC032	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC033	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC034	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC035	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC036	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC037	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC038	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC039	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC040	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC041	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC042	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC043	(NO DISPLAY)	0000/0001	0000	0000	0000
IPC044	(NO DISPLAY)	0000/0001	0000	0000	0000

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
IPD001	(NO DISPLAY)	0000~00FF	0040	0040	0040
IPD002	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPD003	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPD004	(NO DISPLAY)	0000~0007	0000	0000	0000
IPD005	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPD006	(NO DISPLAY)	0000~0007	0006	0006	0006
IPD007	(NO DISPLAY)	0000~00FF	0018	0018	0018
IPD008	(NO DISPLAY)	0000/0001	0000	0000	0000
IPD009	(NO DISPLAY)	0000~000F	0001	0001	0001
IPD010	(NO DISPLAY)	0000~00FF	0062	0062	0062
IPD011	(NO DISPLAY)	0000~000F	0005	0005	0005
IPD012	(NO DISPLAY)	0000~00FF	002B	002B	002B
IPD013	(NO DISPLAY)	0000~0007	0000	0000	0000
IPD014	(NO DISPLAY)	0000~0007	0000	0000	0000
IPD015	(NO DISPLAY)	0000/0001	0002	0002	0002
IPD016	(NO DISPLAY)	0000/0001	0002	0002	0002
IPD017	(NO DISPLAY)	0000~00FF	0002	0002	0002
IPD018	(NO DISPLAY)	0000~0007	0002	0002	0002
IPD019	(NO DISPLAY)	0000~00FF	0002	0002	0002
IPD020	(NO DISPLAY)	0000~0007	0002	0002	0002
IPD021	(NO DISPLAY)	0000~00FF	0070	0070	0070
IPD022	(NO DISPLAY)	0000/0001	0080	0080	0080
IPD023	(NO DISPLAY)	0000~000F	0080	0080	0080
IPD024	(NO DISPLAY)	0000~00FF	0070	0070	0070
IPD025	(NO DISPLAY)	0000~000F	0060	0060	0060
IPD026	(NO DISPLAY)	0000~00FF	0050	0050	0050
IPD027	(NO DISPLAY)	0000~00FF	0040	0040	0040
IPD028	(NO DISPLAY)	0000~0007	0000	0000	0000
IPD029	(NO DISPLAY)	0000~0007	0000	0000	0000
IPD030	(NO DISPLAY)	0000/0001	0000	0000	0000
IPD031	(NO DISPLAY)	0000/0001	0000	0000	0000
IPD032	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPD033	(NO DISPLAY)	0000/0001	0000	0000	0000
IPD034	(NO DISPLAY)	0000/0001	0000	0000	0000
IPD035	(NO DISPLAY)	0000~0003	0000	0000	0000
IPD036	(NO DISPLAY)	0000~000F	0000	0000	0000
IPD037	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPD038	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPD039	(NO DISPLAY)	0000/0001	0000	0000	0000
IPD040	(NO DISPLAY)	0000/0001	0000	0000	0000
IPD041	(NO DISPLAY)	0000/0001	0000	0000	0000
IPD042	(NO DISPLAY)	0000/0001	0000	0000	0000
IPD043	(NO DISPLAY)	0000/0001	0000	0000	0000
IPD044	(NO DISPLAY)	0000/0001	0000	0000	0000
IPD045	(NO DISPLAY)	0000/0001	0000	0000	0000

Item No.	Item	Variable range	Setting value		
			PAL	SECAM	NTSC
IPD046	(NO DISPLAY)	0000/0001	0000	0000	0000
IPD047	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPD048	(NO DISPLAY)	0000~00FF	0000	0000	0000
IPD049	(NO DISPLAY)	0000~00FF	0090	0090	0090
IPD050	(NO DISPLAY)	0000~0007	0000	0000	0000
IPD051	(NO DISPLAY)	0000~00FF	001D	001D	001D
IPD052	(NO DISPLAY)	0000~0007	0002	0002	0002
IPD053	(NO DISPLAY)	0000~00FF	00E6	00E6	00E6
IPD054	(NO DISPLAY)	0000/0001	0001	0001	0001
IPD055	(NO DISPLAY)	0000~000F	0001	0001	0001
IPD056	(NO DISPLAY)	0000~00FF	000E	000E	000E
IPD057	(NO DISPLAY)	0000~000F	0004	0004	0004
IPD058	(NO DISPLAY)	0000~00FF	00C0	00C0	00C0

4.7 ADJUSTMENT PROCEDURE

4.7.1 CHECK ITEM
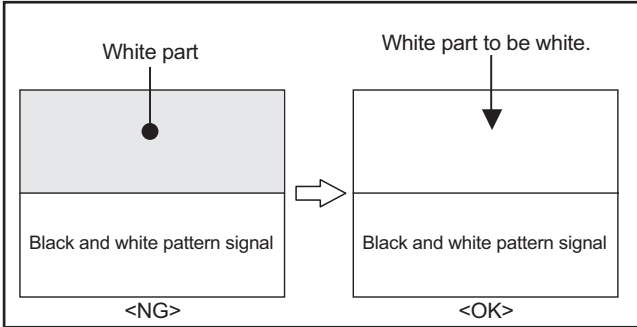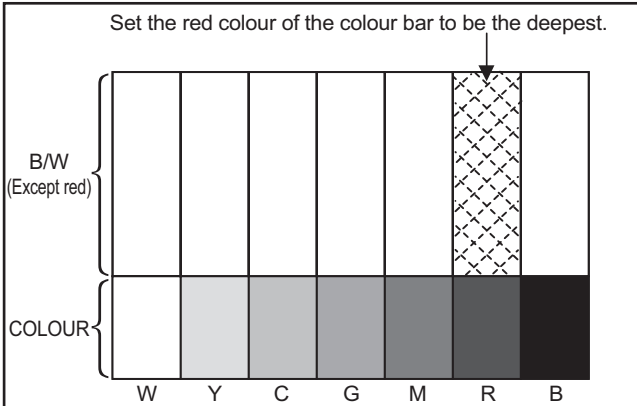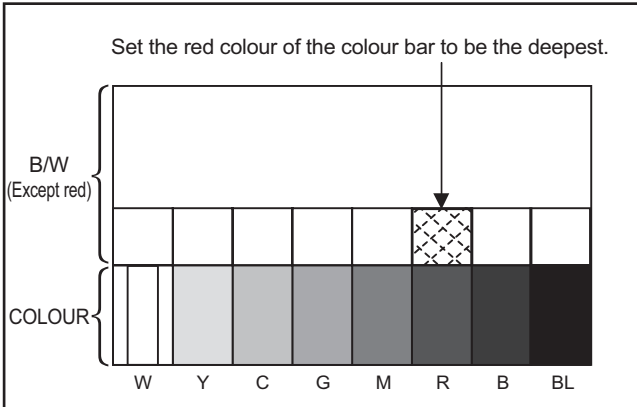
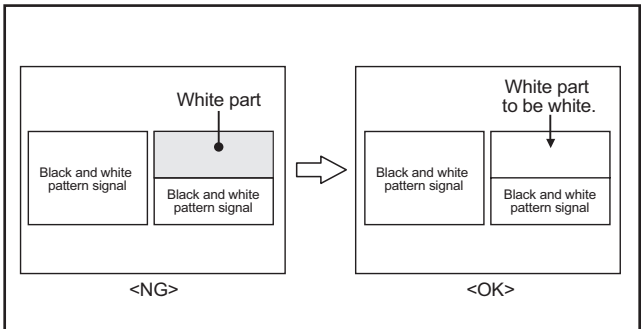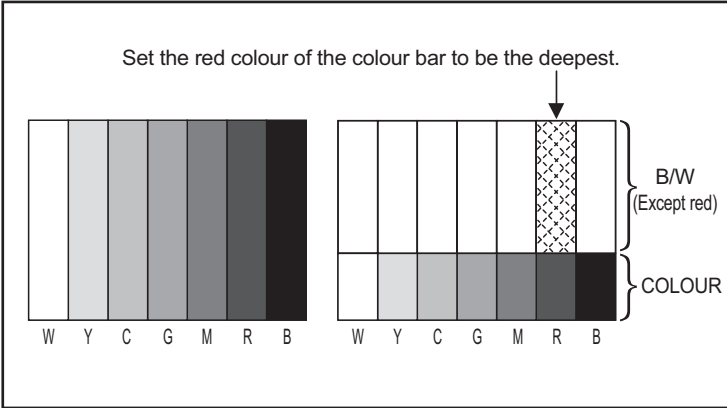| Item	Measuring instrument	Test point	Adjustment part	Description
VCO (AFC) check	Remote control unit Signal generator		[1.IF] 1.VCO(CW)	(1) Receive a PAL colour bar signal. (2) Select "1. IF" from the SERVICE MENU. (3) Select "1. VCO." (4) Make sure that an arrow of "MAIN" is in the position between "ABOVE REF." and "BELOW REF."on the screen (5) Make sure that an arrow of "SUB" is in the position between "ABOVE REF." and "BELOW REF."on the screen.
 Fig.3				
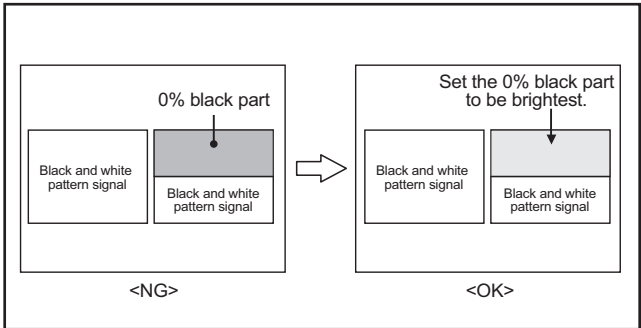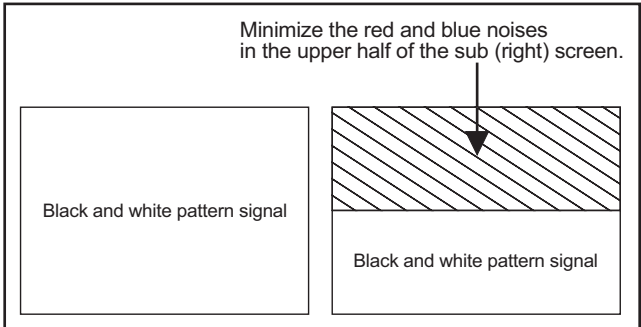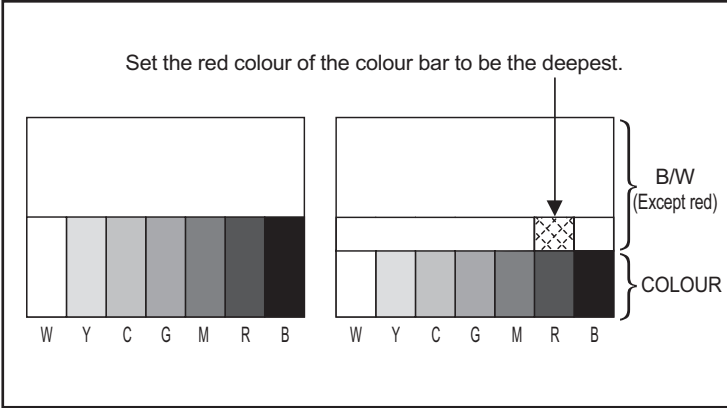
4.7.2 VIDEO CIRCUIT

Item	Measuring instrument	Test point	Adjustment part	Description
SUB BRIGHTNESS	Remote control unit Signal generator		[2.V/C] 9. BRIGHT (Bright)	(1) Receive a PAL black and white pattern signal (including 0% black signal). (2) Select "2. V/C" from the SERVICE MENU. (3) Adjust < 9. BRIGHT > (Bright) to set the 0% black part to be the brightest. (4) Press the [OK] key to memorize the set value.
 Fig.4				

Item	Measuring instrument	Test point	Adjustment part	Description
SUB CONTRAST	Remote control unit Signal generator		[2. V/C] 10. CONT (Contrast)	(1) Receive a PAL black and white pattern signal (colour off). (2) Select "2. V/C" from the SERVICE MENU. (3) Adjust < 10. CONT > (Contrast) to set the white part to be white. (4) Press the [OK] key to memorize the set value.

White part

White part to be white.

Black and white pattern signal

Black and white pattern signal

<NG>

<OK>

Fig.5

Item	Measuring instrument	Test point	Adjustment part	Description

PAL/SECAM/ NTSC SUB COLOUR	Remote control unit
	
	Signal generator
			[2.V/C]
			13. COLOUR
			(Colour)
				- PAL COLOUR -
				(1) Receive a PAL colour bar signal (full field colour bar).
				(2) Select "2. V/C" from the SERVICE MENU.
				(3) Adjust < 13. COLOUR > (Colour) to set the red colour of the colour bar signal to be the reddest. (See Fig.6)If noise is not completely deleted, adjust < 13. COLOUR > so that the red colour has the minimum noise.
				  NOTE:
				    If you select an adjustment item < 13. COLOUR >, then the screen turns to an adjustment screen shown in Fig.6.
				(4) Press the [OK] key to memorize the set value.
				(5) Press the [INFORMATION] key twice to the normal screen.
				
				- SECAM COLOUR -
				(1) Receive a SECAM colour bar signal (half colour bar).
				(2) Select "2. V/C" from the SERVICE MENU.
				(3) Make similar adjustment of SECAM COLOUR in the same way as for "PAL COLOUR". (See Fig.7)
				
				- NTSC COLOUR -
				(1) Input a NTSC 3.58 composite colour bar signal (full field colour bar 75% white).
				(2) Select "2. V/C" from the SERVICE MENU.
				(3) Make similar adjustment of NTSC COLOUR in the same way as for "PAL COLOUR". (See Fig.6)
				(4) Input a NTSC 4.43 composite colour bar signal (full field colour bar 75% white), and then check the red colour of the colour bar signal and confirm that there is no noise or the minimum noise.

Set the red colour of the colour bar to be the deepest.

B/W (Except red)

COLOUR

W Y C G M R B

Fig.6

Set the red colour of the colour bar to be the deepest.

B/W (Except red)

COLOUR

W Y C G M R B BL

Fig.7

Item	Measuring instrument	Test point	Adjustment part	Description
SUB-SCREEN BRIGHTNESS	Remote control unit Signal generator		[2. V/C] 11. TWN BRG (Sub-screen bright)	(1) Receive a PAL black and white pattern signal (including 0% black signal). (2) Select "2. V/C" from the SERVICE MENU. (3) Adjust < 11. TWN BRG > (Sub-screen bright) to set the 0% black part in the sub (right) screen to be the brightest. **NOTE:** If you select an adjustment item < 11.TWN BRG >, then the screen automatically turns to twin pictures mode. (4) Press the [OK] key to memorize the set value.
	Fig.8			
SUB-SCREEN A-D OFFSET	Remote control unit Signal generator		[2. V/C] 7. TWN HI R (Sub-screen high light red) 8. TWN HI B (Sub-screen high light blue)	(1) Receive a PAL black and white pattern signal (including 0% black signal). (2) Select "2. V/C" from the SERVICE MENU. (3) Adjust < 7.TWN HI R >(Sub-screen high light red) to minimize the red noise in the upper half of the sub (right) screen. (See Fig.9) **NOTE:** If you select an adjustment item < 7. TWN HI R >, then the screen automatically turns to twin pictures mode. (4) Press the [OK] key to memorize the set value. (5) Adjust < 8.TWN HI B >(Sub-screen high light blue) to minimize the blue noise in the upper half of the sub (right) screen. (See Fig.9) (6) Press the [OK] key to memorize the set value.
	Fig.9			
SUB-SCREEN CONTRAST	Remote control unit Signal generator		[2. V/C] 12. TWN CNT (Sub-screen contrast)	(1) Receive a PAL black and white pattern signal (colour off). (2) Select "2. V/C" from the SERVICE MENU. (3) Adjust < 12. TWN CNT > (Sub-screen contrast) to set the white part in the sub (right) screen to be white. **NOTE:** If you select an adjustment item < 12.TWN CNT >, then the screen automatically turns to twin pictures mode. (4) Press the [OK] key to memorize the set value.
	Fig.10			

Fig.8

Fig.9

Fig.10

Minimize the red and blue noises in the upper half of the sub (right) screen.

0% black part — Set the 0% black part to be brightest.

Black and white pattern signal

<NG>   <OK>

White part — White part to be white.

Item	Measuring instrument	Test point	Adjustment part	Description
PAL/SECAM/ NTSC SUB-SCREEN COLOUR	Remote control unit Signal generator		[2. V/C] 16. TWN COL (Sub-screen colour)	**- SUB-SCREEN PAL COLOUR -** (1) Receive a PAL colour bar signal (full field colour bar). (2) Select "2. V/C" from the SERVICE MENU. (3) Adjust < 16. TWN COL > (Sub-screen colour) to set the red colour of the colour bar signal in the sub screen to be the reddest. (See Fig.11) 　If noise is not completely deleted, adjust < 16. TWN COL > so that the red colour has the minimum noise. 　**NOTE:** 　　If you select an adjustment item < 16.TWN COL >, then the screen automatically turns to twin pictures mode. (4) Press the [OK] key to memorize the set value. (5) Press the [INFORMATION] key twice to the normal screen. **- SUB-SCREEN SECAM COLOUR -** (1) Receive a SECAM colour bar signal (half colour bar). (2) Select "2. V/C" from the SERVICE MENU. (3) Make similar adjustment of SECAM COLOUR in the same way as for "SUB-SCREEN PAL COLOUR". (See Fig.12) **- SUB-SCREEN NTSC COLOUR -** (1) Input a NTSC 3.58 composite colour bar signal (full field colour bar 75% white). (2) Select "2. V/C" from the SERVICE MENU. (3) Make similar adjustment of NTSC COLOUR in the same way as for "SUB-SCREEN PAL COLOUR". (See Fig.11) (4) Input a NTSC 4.43 composite colour bar signal (full field colour bar 75% white), and then check the red colour of the colour bar signal and confirm that there is no noise or the minimum noise.

Set the red colour of the colour bar to be the deepest.

B/W (Except red)

COLOUR

W Y C G M R B　　　W Y C G M R B

Fig.11

Set the red colour of the colour bar to be the deepest.

B/W (Except red)

COLOUR

W Y C G M R B　　　W Y C G M R B

Fig.12

Item	Measuring instrument	Test point	Adjustment part	Description
WHITE BALANCE (HIGH LIGHT)	Remote control unit Signal generator		[2. V/C] S13: R GAIN S15: G GAIN S17: B GAIN	(1) Receive a PAL 75% all-white signal. (2) Set colour temperature to "NORMAL." (3) Select "2. V/C" from the SERVICE MENU. (4) Fix one of < S13 > (R GAIN), < S15 > (G GAIN), or < S17 >(B GAIN). Then, lower the other two that are not fixed so that the all-white screen is equally white throughout. 　**NOTE:** 　　Set one or more of < S13 >, < S15 >, and < S17 > to 255. (5) Check that white balance is properly tracked from low light to high light. 　If the white balance tracking is deviated, adjust to correct it. (6) Press the [OK] key to memorize the set value.

SECTION 5
TROUBLESHOOTING

This service manual does not describe TROUBLESHOOTING.